# The Connecticut Pomological Society

## PROCEEDINGS
## NINTH ANNUAL MEETING
## 1900

HON. J. H. HALE, South Glastonbury, Conn.,
*President Connecticut Pomological Society, 1895-1900.*

# The Connecticut Pomological Society.

## Proceedings of the Ninth Annual Meeting, held at Hartford, Wednesday and Thursday, February 14th and 15th, 1900


PUBLISHED BY THE SOCIETY.
1900.

# OFFICERS AND COMMITTEES.

## 1900.

*President*, . . JOSIAH H. MERRIMAN, New Britain.
*Vice-President*, . GEORGE S. BUTLER, Cromwell.
*Secretary*, . . HENRY C. C. MILES, Milford.
*Treasurer*, . . ROSWELL A. MOORE, Kensington.

## COUNTY VICE-PRESIDENTS.

HARTFORD, . . . . J. C. EDDY, Simsbury.
NEW HAVEN, . . . DENNIS FENN, Milford.
FAIRFIELD, . . . . N. H. SHERWOOD, Southport.
LITCHFIELD, . . . C. I. ALLEN, Terryville.
MIDDLESEX, . . . G. W. SPICER, Deep River.
NEW LONDON, . . . L. P. SMITH, Lebanon.
WINDHAM, . . . . LUCIEN BASS, Scotland.
TOLLAND, . . . . M. P. COLEMAN, South Coventry.

## STANDING COMMITTEES.

*Business and Legislation*—J. R. BARNES, West Cheshire; J. B. NOBLE, East Windsor; A. R. WADSWORTH, Farmington.

*Membership*—E. M. IVES, Meriden; AND COUNTY VICE-PRESIDENTS.

*Exhibitions*—PROF. A. G. GULLEY, Storrs; N. S. PLATT, New Haven; H. C. C. MILES, Milford.

*Injurious Insects*—PROF. W. E. BRITTON, New Haven; PROF. H. A. BALLOU, Storrs; J. R. BARNES, West Cheshire.

*Fungous Diseases*—DR. W. C. STURGIS, New Haven; G. S. BUTLER, Cromwell; A. B. PLANT, Branford.

*New Fruits*—EDWIN HOYT, New Canaan; H. L. FAIRCHILD, Nichols.

*Markets and Transportation*—J. H. HALE, South Glastonbury; N. S. PLATT, New Haven; E. ROGERS, New Britain; A. C. INNIS, Stratford; J. N. BARNES, Yalesville; A. C. STERNBERG, West Hartford.

# CONSTITUTION.

ARTICLE I.—The name of this Association shall be THE CONNECTICUT POMOLOGICAL SOCIETY.

ARTICLE II.—Its object shall be the advancement of the science and art of Pomology, and the mutual improvement and business advantage of its members.

ARTICLE III.—Any person may become a member of this Society by paying into the treasury the sum of one dollar per annum. If the annual fee remains unpaid for two years, the membership shall cease and the name be taken from the Roll.

ARTICLE IV.—Its officers shall consist of a President, First Vice-President, one Vice-President from each County, a Secretary, and a Treasurer, to be elected annually by ballot, to hold office for one year, or until their successors are duly elected.

The President, First Vice-President, Secretary and Treasurer shall constitute the Executive Committee of the Society.

ARTICLE V.—The Society shall hold its annual meeting during the month of February, the time and place to be decided by the Executive Committee, at which time the annual election of officers shall be held. Various reports submitted and an exhibition and discussion of fruits take place, also other necessary business be transacted. Other meetings for special purposes may be arranged for and called by the Executive Committee whenever it is deemed advisable. Printed notice of each meeting to be sent to every member of the Society.

ARTICLE VI.—The following Standing Committees of three members each, on the following subjects, shall be appointed by the President, to hold during his term of office. The appointments to be announced at the annual meeting of the Society.

*Business and Legislation,*
*Membership,*
*Exhibitions,*
*Injurious Insects,*
*Fungous Diseases,*
*New Fruits,*
*Markets and Transportation.*

ARTICLE VII.—This Constitution may be amended by a vote of two-thirds of the members present at any annual meeting.

## BY-LAWS.

ARTICLE I.—The President, Secretary, Treasurer and the chairman of each standing committee shall each present a report at the annual meeting of the society.

ARTICLE II.—The President shall appoint annually two members to audit the accounts of the Secretary and Treasurer.

ARTICLE III.—The Treasurer shall pay out no money except on the written order of the President, countersigned by the Secretary.

ARTICLE IV.—It shall be the duty of the Executive Committee to arrange the programs for the meetings of the Society, to fill all vacancies which may occur in its offices between the Annual Meetings, and to have general management of the affairs of the Society.

ARTICLE V.—The Committee on Legislation shall inform themselves in regard to such laws as relate to the Horticultural interests of the State and bring the same to the attention of the Society and also the need of further legislation. And when so directed by the Society, shall cause to be introduced into the General Assembly such bills as may be deemed necessary, and to aid or oppose any bills introduced by others, which directly or indirectly affect the interests of the fruit growers.

ARTICLE VI.—The Committee on Membership, with the co-operation of the County Vice-Presidents, shall bring the work of the Society to the attention of fruit growers throughout the State, and by such means as they deem best strive to increase the membership.

ARTICLE VII.—The Committee on Exhibitions shall suggest from time to time such methods and improvements as may seem to them desirable in the conduct of the exhibitions of the Society, as well as fruit exhibitions throughout the State.

And with the assistance of the Executive Committee shall arrange the premium lists, and have charge of all Exhibitions given by this Society.

ARTICLE VIII.—It shall be the duty of the Committees on Insects and Diseases to investigate in regard to the ravages of these enemies of fruit culture, and to suggest how best to combat

them and prevent their spread; to answer all inquiries addressed to them by the members as far as possible, and, when necessary, promptly lay before the Society timely information on these subjects.

ARTICLE IX.—The Committee on New Fruits shall investigate and collect such information in relation to newly introduced varieties of fruits, as is possible, and to report the same to the Society, with suggestions as to the value of the varieties for general cultivation.

ARTICLE X.—The Committee on Markets and Transportation shall inform themselves as to the best methods of placing fruit products upon the market, and bring to the attention of the members of the Society this and any other information concerning profitable marketing.

ARTICLE XI.—The Society will adopt the nomenclature of the American Pomological Society.

ARTICLE XII.—These By-Laws may be amended by a majority vote of the members present at any regular meeting.

# EDITOR'S NOTE.

THE first volume of the proceedings of the Connecticut Pomological Society, published last year, brought the record of its work up to the beginning of the year 1900.

Soon after the annual meeting in February, 1900, the Executive Committee of the Society decided that the addresses and discussions of that meeting were of such practical and timely value that they deserved to be incorporated in a separate volume and published for the immediate benefit of the membership. By this plan it would be possible to give a much more complete account of the subjects under discussion than if the attempt were made to cover the entire year's work.

Notwithstanding the unexpected delay in issuing this report it is believed that its contents will be appreciated by our members, and the many instructive words of the various speakers prove helpful in the practical every-day work of all who cultivate fruits for home use or market.

In the future it will be the aim of the Society to publish with each recurring annual meeting a record of its transactions for the year past.

H. C. C. MILES,

*Secretary.*

# PROGRAM PREPARED FOR THE NINTH ANNUAL MEETING OF THE SOCIETY.

## WEDNESDAY, February 14th.

### *MORNING SESSION.*

PRESIDENT'S ADDRESS.
Annual Report of the Secretary.
Report of the Treasurer.
Reports of Standing Committees:
Business and Legislation—*J. C. Eddy, Simsbury.*
Insects—*Prof. W. E. Britton, New Haven.*
Injurious Diseases—*Dr. W. C. Sturgis, New Haven.*
Exhibitions—*Prof. A. G. Gulley, Storrs.*
New Fruits—*N. S. Platt, State Pomologist.*
A PAPER. "Some Diseases of the Peach."—*Dr. W. C. Sturgis, Connecticut Experiment Station, New Haven.*

RECESS.

### *AFTERNOON SESSION.*

"Our Fruit Crops and Their Successful Marketing."—*W. H. Blodget, Worcester, Mass.*
"New Varieties and Their Behavior in Connecticut."—*H. L. Fairchild, Nichols.*
"The New Apple Culture."—*Prof. S. A. Beach, Horticulturist, N. Y. Experiment Station, Geneva.*

### *EVENING SESSION.*

LECTURE (Illustrated with Lantern Slides). "Bees, Flowers and Fruit."—*Prof. L. R. Jones, Vermont Experiment Station, Burlington.*

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## THURSDAY, February 15th.

### *MORNING SESSION.*

"Japan Plums; Their Present and Future Value."—*Henry Lutts, Youngstown, N. Y.*
"The Relative Influence of Stock and Cion."—*Prof. A. G. Gulley, Connecticut Agricultural College.*
"Twelve Years Experience in Spraying."—*Edward VanAlstyne, Kinderhook, N. Y.*

RECESS.

### *AFTERNOON SESSION.*

ELECTION OF OFFICERS.
"Small-Fruit Culture: New Varieties and Best Methods of Marketing."—*A. G. Sharp, Richmond, Mass.*
Ten-minute papers and discussion on following topics:
"Lessons from the Apple Crop of '99."—*J. H. Merriman, New Britain.*
"Pruning, Thinning and Spraying Apples."—(Results of Some Experiments.)—*E. M. Ives, Meriden*
"Grafting of Native Nuts."—*Prof. W. E. Britton, Horticulturist, Connecticut Experiment Station.*

# Proceedings of the Ninth Annual Meeting.

THE Connecticut Pomological Society convened in its ninth annual meeting at Jewell Hall, Hartford, Wednesday morning, February 14, 1900. President J. H. Hale called the meeting to order at 10 o'clock. The gathering of members and others was unusually large at the opening session and the lively interest and increasing attendance was a marked feature of the entire meeting.

## PRESIDENT'S ADDRESS.

In his annual address to the Society President Hale said:

As we come together again in this annual meeting, I am pleased to see such a goodly number with us at this opening session, and I also want to congratulate the Society on the bright and happy condition of Connecticut fruit growers at this time, when fruit buds of all kinds are sound and alive, with promise of great crops of fruit the coming season. This is a great contrast to one year ago, when the great blizzard of the middle of February had blasted so many fruit buds, besides weakening and killing many thousands of trees in all parts of America. However, prompt attention to the injured trees by more than the usual amount of pruning and thorough cultivation through the summer of '99, left the Connecticut fruit growers at the end of the season in a less damaged condition than those of most States in the Union, and while 1899 was a season of unusual drought, wherever fruit plan-

tations and orchards were given the most thorough culture, a good tree and plant growth had been secured and, upon the whole, more thrifty and healthy conditions prevailed at the opening of the present winter season than in many previous years. The low prices of strawberries and other small fruits for the last four or five years has caused considerable curtailment of planting in '98 and '99, and the dry weather of '99 still further shortened the crop, so there was a material advancement of the selling price, and there is generally a more hopeful feeling among the small fruit growers than there has been for a number of years past.

The public have gotten so in the habit of using small fruits when they were so cheap that they will continue to purchase them freely even with the advancing prices, and further extended plantings are likely to follow this coming spring. After the great freeze of a year ago had destroyed most of the peach buds in the State, the leading orchards were barren of fruit. There were, however, a few favored localities on the hill tops of Hartford, New Haven and New London counties where some fine fruit was produced, probably 50,000 baskets in the whole State, when a full crop would have give two million baskets.

Japanese plums, which have been growing in favor for several years past, came into very great prominence the last fruiting season by giving full crops of fruit in sections where peaches were entirely killed, and the markets accepted this new fruit at prices that put it within the reach of all consumers, after returning fair profits to the producers. The apple crop, which was a failure in '99 in some sections of the State, was quite a large one in many others; the fruit was of exceptional size and beauty and sold at higher prices than for many years past, and shipments to many distant points attracted attention to Connecticut as an apple-growing State of commercial importance.

It has been the policy in the past for the leading fruit growers of Connecticut to use very liberally of commercial fertilizers, while cultivating thoroughly and well, but in several experiments being carried on the last three or four years, where more thorough cultivation had been given

and no fertilizer applied, orchard trees were making equally strong growth as those that were cultivated less, but heavily fertilized. With the leading fertilizer dealers in the combine or trust, which, of course, means much higher prices for goods, there is more than ever a necessity for thorough cultivation, which will enable us to take from the soil and make available plant food already therein. I am glad to state that Lucien Sanderson of New Haven, Conn., a reliable fertilizer dealer, and also the well-known Mapes Company of New York, are independent of this combine, and are worthy to receive a liberal share of our patronage. In the matter of thorough cultivation, there is a new style of the Cutaway Harrow, "California Sr.," now on exhibition here, and a new "Acme" that works closer up under the tree than anything we have had before, which are going to be of great value in orchard cultivation.

From information received from leading growers and entomologists of this and other States, I am convinced that the San Jose scale has already secured substantial footing in every fruit growing region of America, and while it is well to guard against its further distribution on nursery stock, the main dependence in the guarding against its injurious work in the future is by each one fighting it on their own ground. Badly infested specimens had best be cut and burned. Spraying with dilute kerosene or crude petroleum, when the trees and plants are in a dormant condition, is the best remedy known at the present time.

Peach yellows is being largely held in check by the larger orchardists by pulling out and burning the trees as soon as diseased trees appear; but with the small orchardists and in the home grounds less attention is given to it and it is gaining ground rapidly. This disease does not kill the trees immediately, and so they are left to stand for the sake of getting the little inferior fruit that they produce, and thus the disease is spread to the healthy trees adjoining. I hope the time will come when the intelligence of the General Assembly will discover the great financial injury done to the fruit interest of the State by the repeal of the yellows law.

With the extensive plantings of peach, plum and apple orchards during the last ten years, Connecticut has become one of the leading fruit growing States of the Union. The present favorable condition to the fruit buds has made it probable that for the first time in its history, in the year 1900, Connecticut will be able to ship out many car loads of peaches to adjoining markets. As the great number of these trees are in the orchards of small growers, who are likely to offer the fruit for sale in their nearest home market, there is a likelihood of an over-supply at home and some sort of co-operation is needed for the more profitable distribution of this fruit. Fruit evaporators and fruit canneries are also needed for using the surplus in the vicinity of such fruit centers as Hartford, New Haven and Middletown.

We have held three summer field meetings on the farms of our members in different sections of the State, all of which have been largely attended and have been full of interest to all our members in noting the different varieties of fruits grown and methods of culture.

We have had one Institute this winter and have in mind two or more. These meetings are continually adding to us new members and strengthening and broadening the ideas of our older members.

It was voted at our last session to instruct our committee to ask the General Assembly for an appropriation to aid the work of this Society. This committee asked for the sum of $500 per year and this sum was readily given to us, and will be of great help to us in building up and strengthening the organization by better programs and by more speakers along the lines that we are working in.

We are glad to have with us to-day members from our sister society in Massachusetts, and also members of the Eastern New York Society, and we are also glad to welcome the delegates from the New Jersey Society, and we want you, one and all, to enter into our proceedings and feel free to be one of us as long as here.

# SECRETARY'S REPORT.

Following the President's address, the annual report of the Secretary, H. C. C. Miles, was presented as follows:

*Mr. President and fellow Members:*

In accordance with the rules of our organization, I would submit the following brief report of the present condition of the Society and the work it has accomplished the past year.

It is indeed gratifying to be able to say that the year 1899 has been one of growth and prosperity for our Society. There has been a large gain in membership; our meetings have been well attended and lively; the interest in our work has increased, and, best of all, our members continue enthusiastic in their support of the Society.

## MEMBERSHIP.

One year ago I reported to you a total membership of 193. To-day we have on our roll a total of 281 names—a gain of eighty-eight during the year just closed. Allowing for the losses we have sustained by deaths, withdrawals and the failure of twenty-five of our members to renew their membership, the gain for 1899 is about twenty-five per cent.

Perhaps it may be interesting to you to know how our membership is distributed throughout the State:

In Hartford County, eighty-nine members.
In New Haven County, eighty-three members.
In Fairfield County, twenty-four members.
In Litchfield County, twelve members.
In Middlesex County, thirty members.
In Tolland County, twenty-five members.
In Windham County, four members.
In New London County, twelve members.

From February 1, 1899, to February 1, 1900, I have received and paid over to the Treasurer from membership

fees, $238; from proceeds of annual exhibition, $10.80; total, $248.80. Have drawn orders on the Treasurer for the payment of bills to the amount of $282.88. These receipts, together with the appropriation secured from the State through the last General Assembly, has made it possible to extend our work and make the Society of greater value to the fruit interests of Connecticut.

The increase of funds at our disposal has made possible the plan of publishing a report of the work of the Society for the past eight years of its existence, which book is now ready to be placed in the hands of our members.

## MEETINGS.

Since our last annual meeting the Society has held seven gatherings.

March 16 an invitation to hold an institute at Middletown was accepted from Mattabesett Grange. This was one of the most largely attended institutes of the season, showing the deep interest that is taken by farmers in the subject of fruit culture and their appreciation of the efforts of this Society to help them in this line of work.

Four field meetings were held.

The season opened with a gathering on the farm of Bro. E. C. Warner at North Haven during strawberry time. This was a pleasant and profitable meeting and it is safe to say that every one that was present and saw the wonderful exhibition of berries in Mr. Warner's fields, went home in a thoughtful if not an envious mood.

It was intended to arrange meetings of this sort for each month of the season, but later it was found necessary to omit the July meeting. In August, however, two field meetings were held, one with Mr. Nellis Sherwood at Sound View Farm, Southport, and one with Vice-President Merriman at Southington. The Society has never been privileged to meet upon a better cared-for farm than that of Brother Sherwood, and the pleasant hospitality shown us by the host and hostess, as well as other good Southport friends, will long linger in our memories.

The Southington meeting was marked by a very large attendance of members and visitors; also several features

of much pleasure and practical value, while a tour of the extensive orchards of Messrs. Merriman, Rogers and Gridley furnished valuable object lessons for all.

The last outdoor gathering of the year was at the Connecticut Agricultural College, at Storrs, in September. While not so fully attended as some of the others, those who did attend, had a splendid opportunity to become acquainted with this important institution—"the farmers' own college." All viewed with much interest the work being carried on in the Horticultural Department under direction of Professor Gulley, and all appreciated as well the kindness and hospitality shown us by the entire faculty and friends at Storrs.

Following up the success achieved in our first exhibition of '98, arrangements were early begun for the second annual fall exhibit, which took place at Meriden October 3 and 4, 1899. The different features and the results of that meeting are so fresh in your minds that I need not speak of them in detail. Suffice it to say that as regards an attractive display of *fine*, *perfect* fruits, this exhibit has never been equalled in the State of Connecticut. Even so high an authority as Mr. Geo. T. Powell of New York State, who was present as a speaker and expert judge, was obliged to confess that "the show of apples was the *best*" he "had seen *anywhere* that season."

As showing the interest manifested in the exhibition by the fruit growers, there were very nearly 500 separate entries. The premium list amounted to $368.85, and the total awards were $274. In only one particular did this exhibition lack of being a complete success, and that was in point of attendance. It seems unfortunate that all who directly or indirectly are interested in horticulture did not avail themselves of the rare privilege and valuable object lessons afforded them in this grand show. Doubtless some mistakes were made in this, our second attempt in exhibitions, but, after considering it all, I believe we should have the courage to continue these annual fruit exhibits.

Responding to a very pressing invitation from the Higganum Grange, the Society met in that town January 31. Well attended and productive of much profit and

pleasure, this institute demonstrated the value of such gatherings to the farmers of the State, and that by such means as this a very enjoyable day can be spent in discussing that most pleasant and profitable branch of farming—the culture of choice fruits. It is hoped that more of the Granges will come forward and work with the Society for mutual improvement.

As the scope of our work is extended and the changing times make new demands upon the Society, new ideas and plans of work suggest themselves. There seems little doubt but that, with increased funds at its command; with the continued support and wise counsels of its leading members, the Society will be able to keep pace with the times and be ready to seize the opportunity to aid the fruit growers of the State in every possible way, as well as faithfully represent their interests before the public.

Finally, there is no better evidence of the fact that we are a live and growing organization than by the flood of correspondence coming into the Secretary's office from sister societies, departments of agriculture and experiment stations of other States, business firms and individuals interested in our work. We have reason to congratulate ourselves that not only has our organization become profitable to ourselves, but that it is also considered an important force in the world at large.

The duties of my office have been more numerous than in any previous year, but they have been cheerfully performed, and, in closing I wish to thank all who have in any way assisted me in the work.

Respectfully submitted,

H. C. C. MILES,

*Secretary.*

On motion of A. C. Sternberg the report of the Secretary was accepted.

# TREASURER'S REPORT.

The Treasurer, R. A. Moore, next read his report, giving a *resumé* of the receipts and expenditures of the Society since its organization, also a detailed statement for the past year as follows:

## RECEIPTS.

| | | | |
|---|---|---|---|
| 1899. | | | |
| Feb. | 1. | Balance in Treasury, | $260.31 |
| | 2. | Membership fees, | 105.00 |
| | 25. | Membership fees, | 10.00 |
| March | 18. | Membership fees, | 25.00 |
| Aug. | 15. | Membership fees, | 25.00 |
| | 17. | Membership fees, | 27.00 |
| Sept. | 15. | Membership fees, | 11.00 |
| Oct. | 4. | Membership fees, | 17.00 |
| | 4. | Admissions to exhibition, | 10.80 |
| Nov. | 14. | State Comptroller, acct. annual appropriation, | 389.91 |
| Dec. | 13. | Membership fees, | 7.00 |
| | 13. | O. Gilbert, premiums donated, | 4.25 |
| | 25. | State Comptroller, | 130.27 |
| 1900. | | | |
| Jan. | 31. | Membership fees, | 11.00 |
| | | | $1,033.54 |

## DISBURSEMENTS.

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| 1899. | | | |
| Feb. | 2. | J. W. Clark, attendance at annual meeting, | $3.50 |
| | 2. | B. D. Halstead, attend. at annual meeting, | 6.00 |
| | 2. | Roland Morrill, attend. at annual meeting, | 22.81 |
| | 2. | J. H. Hale, expenses, annual meeting, | 9.58 |
| | 17. | Jewell Hall, expenses, | 35.00 |
| | 17. | N. P. Daniels, printing, | 13.51 |
| March | 20. | H. C. C. Miles, Secretary, office expenses, | 13.10 |
| April | 29. | H. C. C. Miles, Secretary, supplies, | 5.50 |
| Aug. | 22. | H. C. C. Miles, Secretary, office expenses, | 8.75 |
| | 22. | Tuttle, Morehouse & Taylor, printing, | 2.00 |
| | 22. | J. R. Clark, printing, | 9.35 |

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| Oct. | 4. | Geo. T. Powell, attend. annual fall meeting, | $16.50 |
| | 4. | A. C. Yale, expenses, fall meeting, . . | 1.25 |
| | 5. | Converse Publishing Co., printing, . . | 1.75 |
| | 5. | Journal Publishing Co., printing, . . | 1.00 |
| | 5. | Tuttle, Morehouse & Taylor, printing, . | 12.50 |
| | 19. | H. C. C. Miles, Secretary, office expenses, | 19.40 |
| | 20. | J. H. Hale, expenses, . . . . | 31.05 |
| | 20. | E. M. Ives, expenses annual fall meeting, | 21.40 |
| | 20. | J. R. Clark, printing, . . . . | 10.30 |
| Nov. | 2. | Prof. A. G. Gulley, expenses fall meeting, | 6.45 |
| | 2. | Tuttle, Morehouse & Taylor, printing, . | 4.00 |
| | 2. | R. A. Moore, office expenses, . . . | 3.60 |
| | 16. | Whitehead & Hoag Co., badges, . . | 3.50 |
| | 16. | Premiums, account fall exhibition, . . | 268 00 |
| Dec. | 19. | Tuttle, Morehouse & Taylor, printing, . | 3.12 |
| 1900. | | | |
| Jan. | 31. | H. C. C. Miles, Secretary, office expenses, | 12.75 |
| | 31. | J. R. Clark, printing, . . . . . | 5.35 |
| Feb. | 1. | Balance in Treasury, . . . . . | 482.52 |
| | | | $1,033.54 |

It was voted to refer the Treasurer's report to an auditing committee consisting of Mr. A. C. Sternberg, West Hartford, and Mr. Wm. E. Waller, Plattsville, who subsequently reported the Treasurer's account, with vouchers attached, as correct.

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We certify that we have examined the accounts of the Treasurer of this Society and find same to be correct.

A. C. STERNBERG,
W. E. WALLER, } *Auditors.*

HARTFORD, CONN., February 14, 1900.

# REPORTS OF STANDING COMMITTEES.

The reports of Standing Committees being next in order, the Committee on Injurious Insects was called upon and reported through Professor W. E. Britton, the chairman.

## REPORT OF COMMITTEE ON INJURIOUS INSECTS.

The season of 1899 was cool and dry and, for the most part, was favorable to insect development. Plant lice were especially numerous. Insect attacks were probably much less serious, however, on account of the preceding severe winter which destroyed many plants and trees and injured others. It is quite probable that many insects were also destroyed and injurious forms thus kept in check.

The Fall Canker Worm, *Anisoptery pometarie* Harr., was less abundant at the Station than for several years. I am not able to state whether or not this was the case throughout the State.

Mr. Ives reports that leaf-miners were prevalent in his apple orchards during the latter part of the season.

Scale insects have been more frequently reported to the Chairman of your committee than all other insects together. This is, without doubt, one of the results of the agitation over the San José scale. Orchardists are now looking over their trees as they never have done before, and, as we should expect, are finding various species of scale insects. A large scale on grape sent from Bristol proved to be *Lecanium armeniacum* Craw., a species common and abundant on the Pacific coast, from where it has spread into the Eastern States with considerable rapidity. It usually attacks all kinds of fruit trees (especially rosaceous fruits), and, as I have stated, it is also found upon the grape. It is a large scale, oval in shape and brown in color; it is quite thick and stands out from the bark.

Scales of the genus *Lecanium* have no armor or hardened covering, and are known as unarmored or soft scales. They are very susceptible to the contact of poisons like kerosene emulsion and whale oil soap, and are therefore easy to kill.

One of the most important things to which I wish to call your attention is the bringing into the State of two species greatly resembling San José Scale and, from what we know, are about as bad. They were brought into Connecticut on nursery stock and, as I understand the matter, both came under certificates of inspection. One of these, *Aspidiotus forbesi* John., was found in Illinois in 1894, and described in 1896 by Professor W. G. Johnson, now of the Maryland Experiment Station. Professor Johnson found cherry trees badly infested and considered this the most dangerous scale then established in Illinois. He reported that the scale occurs upon the wild and cultivated cherry, apple, pear, plum, quince and currant. He proposed the popular name of "Cherry Scale" for this insect. It was shipped into Connecticut on apple trees from Pennsylvania.

The second species is *Aspidiotus ostreæformis* Curtis, which was introduced into this country some time ago from Europe, but was not discovered until during the past season. It closely resembles the San José Scale, and has often passed for that species. It has become well established in Central New York and has been reported from Michigan and Canada. It was brought into Connecticut from New York on pear trees.

Though we cannot predict regarding the serious nature of these species in the Eastern States, it is quite probable that either may prove just as undesirable a pest as the San José Scale, and it is for the interest of every fruit grower to make frequent and careful examinations of all trees obtained from nurseries, whether accompanied by certificate or not, and of the trees growing in his orchards. Any new or suspicious specimens should be referred to your committee, who are prepared to have them accurately determined and to advise treatment.

No laws exist in Connecticut at the present time regarding the transportation of infested plants or trees,

and it is possible for such stock to be shipped into Connecticut, when it could not be sold in New York or any other State where nursery laws exist. In case this State should enact laws controlling the distribution of pests, there should be some provision for the inspection and destruction of infested stock at ports or places of entry into the State. The certificate system alone is inadequate and fumigation might be just as much so if the work was placed in incompetent hands.

If imported stock was subjected to a careful inspection when brought into the State, it would not only prevent the spread of dangerous insects within our borders, but unscrupulous nurserymen of other States would soon learn to be more careful about the kind of stock shipped into Connecticut.

Respectfully submitted,

W. E. Britton, *Chairman of Committee.*

The report of Dr. W. C. Sturgis, Chairman of the Committee on Injurious Diseases, was given as follows, and was followed by a lively discussion.

## REPORT OF COMMITTEE ON PLANT DISEASES.

By W. C. Sturgis, Mycologist Connecticut Experiment Station.

Owing to other duties, I have found it impossible to rely upon my personal observations as a basis for a report on the prevalence of fungous diseases during the past season. One member of your committee, however—Mr. A. B. Plant of Branford—has compiled an admirable series of notes on the subject, made in his neighborhood, and to these I may add such information as has come to me incidentally or through correspondence.

### SMALL FRUITS.

*Strawberry.*—The dry weather of the past season was beneficial in preventing any serious outbreak of the "Rust" or Leaf Spot (Sphaerella). It is reported as very light throughout the State. Where the practice is followed of

burning over the beds in the spring, practical immunity is secured from this, the most serious of the fungous diseases of the strawberry.

*Blackberries and Raspberries.*—The "Orange Rust" (Cæoma) is rarely a very serious disease with us. Mr. Plant reports it as exceptionally light during the past season. The only remedy is taking out and burning the diseased plants.

"Anthracnose" (Gloeosporium) is a more serious trouble. It seems to be independent of weather conditions and does very great damage locally. In other places it may be almost unknown. A case was observed in Litchfield County, where a large plantation was so seriously diseased as to be apparently worthless. The owner was advised to cut out the worst canes and to run a plow between the rows, turning up the dirt over the diseased stubs. This was done and a fine crop of fruit was secured. A neighboring plantation which was sprayed with Bordeaux Mixture showed no benefit from the treatment. This is usually the case.

Cultural methods, as in the case above cited, seems the only practical ones in this instance.

*Currants.*—The "Leaf Spot" (Septoria) was reported by Mr. Plant as very bad at Branford upon unsprayed bushes. Where Bordeaux Mixture was used the disease was entirely prevented. This is in line with universal experience in the case of this trouble upon currants.

VINES.

*Grape.*—The "Anthracnose" of the grape (Sphaceloma), like the similar disease of raspberries, seems to be common only locally. Where the vines are kept thoroughly sprayed for more common diseases they are reported as practically exempt from Anthracnose.

The "Downy Mildew" (Plasmopara) is always prevalent where it is not held in check by Bordeaux Mixture. Mr. Plant reports that the disease appeared at Branford very late in the season even on the sprayed vines.

The "Powdery Mildew" (Uncinula) is a disease which seems to be remarkably independent of the weather. Not-

withstanding the dryness of the past season, it attacked vineyards with great severity. Mr. Plant reports that in his own vineyard spraying completely prevented it.

The Black Rot (Laestadia) is unquestionably the most serious fungous disease of grapes in this State. During the last season there was much less of it than usual, probably owing to the dry weather, and vines which were sprayed were entirely exempt.

*Melons.*—The Wilt (Bacillus and Fusarium) was extremely destructive everywhere. The trouble seems to be steadily increasing throughout the State. Spraying seems to have no effect upon it and as yet we have no certain means of checking it.

The "Downy Mildew" (Plasmopara) occurred last summer for the first time to any extent. It proved a serious trouble in a few localities.

Should it increase there is every reason for supposing that it may be as readily held in check by spraying as is the Downy Mildew of the grape.

### TREE FRUITS.

*Pear.*—Mr. Plant reports the usual quantity of Pear-scab (Fusicladium) where trees are not sprayed. I do not think any disease of the large fruits responds more satisfactorily to spraying than pear-scab. In this matter, Mr. Plant speaks from wide experience. Mr. Plant has had trees in his pear orchard for years that have been affected with the Fire Blight (Bacillus), but, upon the whole, he reports that this disease is not increasing throughout the State. Although trees can be kept along for many years by careful pruning, old trees affected with it will finally succumb to it.

*Apples.*—The apple was quite free from disease this last year, owing largely to the climatic conditions, making it one of the off years for fungous depredations. It is doubtful if, under such conditions, spraying was a profitable operation.

*Quince.*—The Leaf Spot was quite prevalent. The Quince seems to be a tree that it is impossible to get any

perfect fruit from unless the trees are thoroughly sprayed. Mr. Plant reports the disease as bad, even in the dry season just past.

*Peach.*—The Brown Rot (Monilia) was not as bad this year as usual. Of course there was only a very light crop, but not more than one per cent of this was affected with the disease. I am under the impression that even had there been a full crop there would have been much less of this trouble than usual, owing to the dry weather.

*Plum and Cherries.*—The Black Knot (Plowrightia) was about as prevalent as usual, and it always will be so, as long as there are so many wild cherries about the farm to spread the disease. The only treatment for this disease is to cut out the knots and burn them. With this, and thorough spraying, which will after a while kill the spores of the fungus, we may hope to get rid of it entirely, if at the same time the wild cherries are destroyed.

Question by Mr. A. C. Innis: The Flemish Beauty Pear is often badly cracked. Is this caused by the pear scab?

Dr. Sturgis: Yes; and is greatly aggravated, in the case of the Flemish Beauty, by the susceptibility of that variety to Leaf Spot (Entomosporium), and when these two come together in one season the fruit suffers badly. With thorough spraying with the Bordeaux Mixture this pear may be kept entirely free from the scab.

Question by Dr. L. A. Smith: Do you spray quinces in the dormant state with sulphate of copper?

Answer: There can no harm come from such spraying and it will doubtless kill many of the spores.

Question—Mr. Merriman: What did you do to prevent the black rot in grapes? What spray did you use?

Answer: Bordeaux Mixture entirely.

Question—Mr. Kelsey: What did you spray pears with?

Answer: Bordeaux Mixture.

Question—Mr. Ives: The Black Knot seems to be quite prevalent at the present time on European varieties of plums. Are we likely to have trouble with it on the American and Japanese varieties also?

Answer: If we don't, we deserve to. With wild cherries within 100 yards of nearly every fruiting orchard, I do not see why it is not more prevalent than it is.

Mr. Ives: I should think it would be easier to spray for the disease than it would to go around and cut down all the wild cherries.

## REPORT OF COMMITTEE ON FAIRS AND EXHIBITS.

In reporting for the Committee on Fairs and Exhibits, Professor A. G. Gulley of Storrs, said:

As I came in President Hale was saying something to you about our exhibition at Meriden last October, so it is hardly necessary for me to speak at length on this matter. He and Secretary Miles have both reported it as a great success in every way. But we are not satisfied that it is a profitable one—the exhibition cost us two or three hundred dollars and I think we had about fifty visitors, besides our members and exhibitors, so every visitor was worth about five dollars to the Society. The fruit growers and consumers of the State did not get the money out of it they should have done. We had there one of the finest collections of apples ever shown, and much valuable information could have been gathered from it, yet we had only this small number of visitors to see it; therefore, it seems to be a question whether it was profitable in the fullest sense. If the people don't care enough about it to take the pains to go, we certainly cannot force them to do so. I think an exhibition ought to be held every year, in some form, for the benefit of the people; at the same time, it is a pretty expensive one.

Could not an exhibition he held in connection with some other Society, at their annual fairs? It seems to me we could thus combine with some other society, and hold an annual fruit exhibition, possibly in connection with their fair. The results of our Meriden exhibition was well worth all the trouble and cost of putting together; whether the people of the State got the money back or not I do not

know; but if not, it was their own fault. We had the show, and a fine one it was. I wish we might be able to have a show of fruit at every meeting, but this cannot be done without premiums to draw people out, for really there is no incentive to cause people to go to the trouble of making such an exhibit. The manufacturer does it as a matter of advertising, but the fruit grower really gets very little benefit for the trouble of getting such an exhibit together. The fruit he carries there is a dead loss; he never takes it home, and the only real good out of it, is the benefit the town or place gets from the exhibit; the individual seldom gets any benefit. It is different from other classes of exhibits and how best to make it of value I cannot say. I have learned more about the varieties of fruits at such fairs than anywhere else; it is a matter of memory very largely. You cannot do it by any books, but by a close observation of varieties and a careful retention of these facts so learned. In our exhibition at Meriden we had some forty varieties of grapes and some fifty varieties of apples; you will not find such a collection as this everywhere. There is an immense amount of information to be gathered from such a show and it seems that for its educational value it should be held in connection with some large fair, where more people will see it.

Following the reading of this report, President Hale called attention to the superb exhibit of apples on the tables at this meeting, that were secured from the Eastern New York Society's meeting by Mr. N. S. Platt and Professor Gulley.

Referring to the matter of exhibitions, the President suggested that a committee be appointed to arrange a scale of premiums that would cover the whole season through, and exhibits be made at the different institutes and field meetings of the Society. "For instance, at a field meeting in the summer, have an exhibit of seasonable fruit then; and at another meeting in August, have an exhibit then. Of course we could not give too much in premiums—perhaps $50; or enough to pay our members for gathering the fruit and carrying it to the meeting. In this way scatter the premiums over four or five meetings."

Professor Gulley—I think this is a feasible suggestion, and think it could be handled and made profitable to our people.

It was voted that the President be given power to appoint such committee. The following were subsequently named as a committee to arrange a schedule of premiums for the year: N. S. Platt, Professor A. G. Gulley and Secretary H. C. C. Miles.

The last committee to report was that of New Fruits.

## REPORT OF COMMITTEE ON NEW FRUITS.

By N. S. Platt, State Pomologist.

I want first to call attention to a plate of hickory nuts, from Seymour, on the table; it seems to be the finest nut that I ever knew as regards plumpness of meat and ease in coming from the shell, and the best in quality. It has a thin shell, and is of fair size. It is not so large as the Kirtland, which is from Connecticut also, and which Professor VanDeman calls the best he has found, but in the above traits it seems to excel it.

I am going to speak to you about the different varieties of fruits as they have been tested by me and their habits noted.

The Early Prolific is a yellow peach, ripening nearly with the Early Crawford. The tree is a superior one in its growth, equal, I think, in vigor to such varieties as Old Mixon, and is very fruitful. The fruit is of good quality and very fine color; it usually colors before fully ripe, and the proper way to handle it is to market it before it is fully ripe. It has the one weakness of being inclined to rot if allowed to reach its best stage before it is marketed; but it is no worse than the Early Crawford in this respect and is superior to it in others, and comes a little bit later than the Early Crawford. It will probably outbear the Reeves Favorite three or four to one right along. It is of fair size and a freestone. It is claimed by the people in Michigan that the Prolific and Fitzgerald are identical with the

Kalamazoo, which is a peach that has been well thought of in Michigan for some time.

I fruited the Greensboro peach this year. I found it of good size; white, with red cheek. A long shaped peach of the Old Mixon type; a departure from the extra early peach of the Alexander type. They are green inside and not very good. It is superior to the Alexander type of peaches although somewhat of a cling. It is earlier than the Triumph by a week and would sell better. The Triumph was a fine-looking peach; yellow, covered with red; looks and tastes good, although it is a cling.

The Belle of Georgia we have fruited a little; it is very attractive and a fine growing tree; the skin of the fruit is usually clear, but somewhat subject to the spot or peach scab, so far as tested by me.

In the matter of berries, I have had little chance to learn and will trust to some other members of the Society to relate what they know about them.

Mr. Platt then called attention to the fine display of apples in the Hall, and urged the members to give them careful attention. A brief discussion followed.

Question—Mr. Merriman: Would you recommend any of these apples from New York State—like the Ben Davis—for Connecticut?

Answer—Mr. Platt: I would recommend no apple for Connecticut that was deficient in flavor. Connecticut has the reputation of raising the highest flavored apples in the country, and it seems to me it is letting down our reputation to introduce apples of inferior flavor. But people will plant them and will sell them.

Question—Mr Innis: Would you recommend planting early peaches for market here in Connecticut?

Answer: I would plant nothing of the Alexander type. Don't believe I would Greensboro or Triumph, either; they are both clings.

Question: Would you plant the Early Crawford type?

Answer: Yes; certainly.

Question: Would you plant the Early Crawford itself?

Answer: I do not know whether I could make it succeed or not; if I could, I would. The Early Prolific is a successful peach, I would certainly recommend this.

Question—Mr. S. B. Wakeman: Have you ever grown the Carman peach?

Answer: I have not.

Question: Is there any place where the Northern Spy apple can be grown successfully except along the Hudson River?

Answer—Professor Gulley: Yes; to perfection in Michigan, and in Vermont and Western New York, and, I believe, could be grown equally well on the heavy lands of Western Connecticut.

After a brief recess, to allow members an opportunity to register their membership with the Secretary, the following very instructive paper was presented:

## SOME DISEASES OF THE PEACH.

By Dr. Wm. C. Sturgis, Connecticut Experiment Station, New Haven.

In a consideration of the diseases to which the peach is subject, we naturally think first of the Yellows, a disease unfortunately so well known as to require no detailed description here. It is widely spread, occurring practically in every section of the country east of the Mississippi and north of Tennessee and Carolina. It has been attrbuted to a number of different causes, but it is safe to say that the disease is a physiological one, rather than one due to parasites of any kind. Among the causes of a physiological nature, the most probable seems to be a peculiar ferment known as an enzym. This substance occurs normally in small quantites in most, if not all, of the higher plants, but when it occurs in excess it produces marked disturbances due in some degree to the destructive action which it exercises upon the chlorophyl or green coloring matter of the plant. Recent investigations by Mr. A. F. Woods of the United States Department of Agriculture indicates that to the action of this ferment may be attributed the albinism

or variegation of plants, and certain diseases such as the Yellows and the Rosette of the peach, the so-called "Calico" of Tobacco, and possibly others of a similar nature.

Whatever the cause of the Yellows, it is certain that as yet we know of no remedy except that of rooting out and burning the diseased trees the moment the first symptoms appear. This has been practiced so very thoroughly in Michigan that the disease has been practically stamped out in the State.

After the Yellows, the most serious disease of the peach is that known as crown gall. A tree affected with this disease presents at first a starved appearance, and presently, without apparent cause, it begins to die back.

If you dig about such a tree you will find, just at the crown of the roots, one or more wart-like growths varying from the size of a walnut up to that of a potato, with a rough exterior, but soft, like a potato. After a while these warts begin to dry and become as hard as wood, and finally they drop off and new ones are formed in their places. You can cut these warts off, but they will come again. A tree affected with this disease seldom lives more than two years. Sometimes you find these knots on the trunks of the tree, but in such cases you will always find them at the crown of the root as well, and, when they are once found, that tree is doomed. I have experimented with this disease by cutting off the knot from the crown of the roots and dipping the latter in a solution of copper sulphate, but without effect. From various experiments it has been proved that Crown Gall is contagious over short distances and if new trees are set in place of affected trees, they will soon become diseased. It is also contagious between the raspberry and the peach, and between the apple and the peach, so that we have three classes of the disease; on the raspberry, on the peach and on the apple, all of which are mutually contagious over short distances.

In one instance, where a small nursery row of apples had been affected with the Crown Gall, the trees were removed, the land thoroughly cultivated and peaches set in the row. These almost immediately became affected

with the Crown Gall. There has been no remedy found yet for it, and the only thing is to look out for it on nursery stock and discard all stock that shows any signs of it, and also to avoid setting peaches on ground that has had apples or raspberries that have had the Crown Gall.

The next disease which may be mentioned is the Brown Rot of the fruit, caused by the fungus Monilia fructigena. As a rule, this rot is confined to the fruit, which it destroys with extraordinary rapidity. Occasionally, however, especially if the weather is very damp, warm and close, it will attack the flowers, the twigs and even the leaves, causing them to decay. Even should the trouble be then checked by a return of dry weather, the fungus will remain in the affected parts, ready to induce a fresh outbreak of the disease with the return of damp weather. In like manner, when the fruit has been subject to the rot, the latter remains alive in the mummified fruit, which is usually allowed to remain all winter on the trees, or on the ground where it has fallen, and there a few hours of warm, wet weather in the spring, calls it into activity again; myriads of spores are produced on the mummified fruit and thence they are borne by the wind in all directions to infect the young growth and finally the fruit also. Spraying, even where it can safely be practiced, is only a partial remedy for this disease, though in the Delaware orchards Bordeaux Mixture has shown beneficial results and without injury to the foliage. Here in Connecticut, however, in season of 1898 peach foliage in Mr. J. H. Hale's orchard was very seriously injured by the use of a well-made Bordeaux Mixture of moderate strength.

[Mr. Hale here remarked that the results were so serious in his orchard that the Department of Agriculture at Washington sent on an expert in spraying, and a test was made with Bordeaux of various strengths, varying from one to six pounds of copper sulphate to fifty gallons of water, some with equal amounts of lime and others with an excess of lime, but in every instance the trees were badly defoliated, convincing him that it was not safe to use Bordeaux Mixture of any strength upon peach foliage here in Connecticut.]

Dr. Sturgis, resuming, said: Next year I want to try different strengths of Bordeaux Mixture on an extended scale and see just what mixture, if any, we can use with safety here in Connecticut.

In reply to a question, Dr. Sturgis said that after picking all mummified peaches from the tree, spraying the trees in March, when dormant, might kill some spores that had remained on the branches. Such a practice would do no harm and there were chances that it would do a great deal of good.

The next disease to which I would call your attention is the so-called Scab. This is caused by a fungus which attacks the fruit, when the latter is about half grown and produces on one side of it numbers of small circular, dark green or almost black spots. Where these spots occur the tissues of the fruit are checked in their growth and become hard; this may go so far as to produce cracks in the fruit, but it is always unsightly, and detracts from the market value of the fruit. The same fungus may attack the twigs and even the leaves, passing the winter upon the former and being carried thence to the fruit the succeeding season.

The last disease which we need notice in this connection is the Leaf Curl, also caused by a fungus. As indicated by the common name, the fungus attacks the leaves causing them to curl up. They also become greatly thickened, pale in color, brittle in texture and covered with a whitish mealiness or bloom owing to the enormous quantity of fruiting bodies, which the fungus produces on the surface of the leaves. Of course the destruction of the leaves or even the diminution of their functional activity caused by the attack of this fungus may be a very serious matter. Usually, however, the practical damage done is very slight, since the conditions favorable to the disease: viz., cold, wet weather in the late spring or early summer, do not ordinarily occur. Judging from our experience with similar diseases on other plants, it seems practically certain that the Leaf Curl and Scab could both be successfully held in check by the use of fungicides, if only we knew of some fungicide which could safely be used. It is hoped

Quince Orchard, Showing Result of Spraying with Bordeaux Mixture.

Adjacent Row, Showing Result of No Treatment.

that the work of the coming season will throw some light on this subject. For the present the only course to be recommended is the trimming of the trees in the autumn and the burning of the twigs thus removed, and the use of fertilizers which will tend to produce well matured wood rather than excessive growth.

Discussion on Dr. Sturgis' paper:

Question—Mr. Barnes: In what way does brown rot on the peach live through the winter?

Answer: In the twigs as well as in the mummified fruit, which is largely the way it lives in our Connecticut peach orchard. This rot spreads most rapidly where two or three peaches are growing together; one becomes decayed and it soon spreads to others. You see this more in the plums, that cluster together on a branch, where it spreads very rapidly. I believe six out of every eight plums might have been saved if two of them had been picked off. I think a great deal is to be done in the way of thinning, when the crop is large, to prevent a spread of this monilia.

At quarter past twelve an adjournment was taken until 1:30 P. M.

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## *Afternoon Session.*

On assembling for the afternoon session the contents of the Question Box and several topics on the Question List were called up for discussion (see page 111).

One question in particular excited the interest of the Society, and provoked an earnest discussion—viz., "Will Connnecticut's next full crop of peaches be profitable to the growers unless we are better organized for proper distribution of it?"

President Hale said: This is a big question; there is a clean half million dollars tied up in the right solution of it; better distribution is the key to most profit.

Mr. Merriman: It seems to me that the time has come when we have got to organize to find profitable markets for our peaches. As it is now, with each man going it alone, such markets as Hartford, Boston or Providence, will very likely be over-stocked, and there has got to be some head for a more even distribution of the fruit in order to get the best results.

Mr. A. C. Innis: I think it would be a good plan for us to at least investigate the methods used by the Western New York grape associations. The general idea is this: A company is formed and one man is employed whose business it is to look after the markets daily; either by telegraph or telephone he keeps himself posted as to the condition of different markets. The fruit is shipped to him and he consigns it to whatever place it seems best according to the market conditions.

Mr. J. Norris Barnes: I have been thinking for some time if it would not be possible for us to cross the water. If it would not be possible to put our fruit in condition that, with proper storage, it could be sent across, just as we do apples. If this could be done, it would open a great outlet for the peaches on our Connecticut farms. I certainly wish this Society would take a step in this direction by appointing a committee to investigate the matter. It would benefit every fruit grower in Connecticut.

Mr. A. C. Sternberg: For the past twenty-five or thirty years the citizens of Maryland, New Jersey and Delaware, raised and marketed more peaches than the State of Connecticut. They have not, perhaps, met with as great success as we have in our home markets, but with our better quality, with our superior handling, and, I might say, our superior way of doing business, I have no fear but that the crop of peaches which is now on the trees in this State, can be disposed of to good advantage within our own country. I have been in Boston several times in marketing my peaches for the past few years and I have found that the market in Boston had almost no limit, and all we do need is to have a responsible party to represent us there. My experience has been that the markets are not lacking in reliable men, who will devote their best energy to their

trust. Still, they will do better if they know we have one of our own men there, looking into the way they are doing business, and keeping them posted as to what is coming along from the orchards. While this Society, as a whole, cannot go into the business of marketing a great peach crop, it would be advisable for those of us who have orchards to form some sort of combination and hire some one good man for each of the principle cities of New England, and let them look after the market end of our business. We shall have enough to do at home in caring for our orchards and in the gathering of our fruit.

Mr. Innis suggested the formation of a committee to look up the amount of fruit likely to be coming into the markets this year.

President Hale said: Such a committee could spend a thousand dollars or more to very good advantage and get excellent results. I am very seriously of the opinion that with the present prospect the Connecticut peach crop of 1900 can be made to bring several hundred thousand dollars more by organization, especially among the small growers, than it will without, and to do that would cost less than $5,000. It would be a pretty good investment, if you are willing to join hands and do it. The larger orchardists are in better position to take care of themselves, for experience has taught them that they cannot depend upon local markets alone, and they already have outside business connections, always shipping their surplus, and in some instances their entire crop, to outside markets. There are a great many owners of small lots of trees—anywhere from one hundred to five hundred—who will market fruit for the first time this year. Every one of these men have planted with the idea of selling that fruit within twenty-five miles of home; they have planted with this idea; they have cultivated with this idea, and they will come up to the time of gathering the fruit with this idea, and they will go into the market and meet there many more who have had the same idea. If things go on as they now promise, Connecticut's local markets are going to be "busted wide open." The crop will be sold for less than half what it is worth, yet within three hundred miles of

us are men, women and children by the millions crying for good peaches, with money to pay for them, too.

New York, only one hundred miles away, is the greatest peach-consuming market in the world. In 1898, for days in succession, New York consumed more than one hundred car loads of high grade peaches from the South, at high prices. One day one hundred and thirty-five car loads were sold, and yet New York had never had in any quantity as fine peaches as Connecticut can produce. Now, if they will consume from seventy-five to one hundred thousand baskets of Southern peaches in a single day, and pay good prices for them, they would certainly take twenty-five thousand baskets daily of our fancy peaches, and give us big money for them. That would mean a market for about thirty-five car loads of our fruit daily. Then we have Boston, which is another superb market. Providence, Worcester and Springfield are all good markets, and there are many others that never saw a car load of peaches, who can readily handle them day after day, if the growers would only come together and form some sort of plan to handle their fruit in the outside markets. It only requires a willingness to coöperate; a contribution of cash at the start, and the pooling of interests in the hands of a few, to insure an increase of from fifteen to twenty-five per cent in the net returns to every orchardist with two thousand or three thousand trees or less. The larger growers can better take care of themselves, yet no doubt would willingly coöperate with any committee that might be formed. For the more thorough and intelligent the distribution, the better it would be for all concerned; for while it would not be for the interest of the largest growers to go into a combination on equal terms with the smallest growers, they could no doubt be of great benefit to smaller planters, without in any way sacrificing any of their interests already established.

For himself, personally, Mr. Hale said his Hartford local market for some years past had been spoiled by the small growers running over one another to take any price they could get; so he had been forced at considerable

expense to develop outside markets, which were now his main dependence, and he could not now afford to change his plans entirely for the benefit of others, yet would gladly give the Society all the aid he could in its efforts at more profitable marketing.

The following resolution was introduced by Mr. N. S. Platt:

"*Resolved*, That the Connnecticut Pomological Society appoint a committee of three to investigate the questions of fruit packages, fruit transportation, and foreign and local markets for fruit, and that this committee report, if possible, the results of such investigation to the Society in time to make them of use in the marketing of next season's peach and apple crops."

This resolution was temporarily laid on the table and the regular order of exercises was then taken up, which was the first address of the afternoon—"Our Fruit Crops and Their Successful Marketing," by W. H. Blodget, Worcester, Mass.

## OUR FRUIT CROPS AND THEIR SUCCESSFUL MARKETING.

By W. H. Blodget, Worcester, Mass.

*Mr. President and Gentlemen of the Connecticut Pomological Society:*

It gives me great pleasure to be with you to-day; in fact, I am always pleased to meet with men who are interested in the growth and handling of fruit. The business is attractive to me; not only is the fruit itself attractive to me, but the men who are engaged in the business have an attraction for me also, and one of the most interesting places for me to visit when I go to a strange city is that part where the fruit products of our country are disposed of. I like to see the different kinds they have to offer and the way they have of displaying it, and I also like to see and talk with the men who are doing the business.

I attended the meeting last month in Baltimore of the National League of Commission Merchants, and I can assure you they were a fine-looking and an honest appearing lot of men, notwithstanding the opinion of some shippers who may have a different idea of the commission merchants than what I may have.

The subject which I have taken for my talk to you today—namely, "Our Fruit Industry: The Proper Care and Handling of Same"—is a very broad one, and very much can be said upon it, but I will try and not tire you by saying too much.

Our fruit industry. Have you any idea of the immense amount of fruit that is grown in this country? Why, only think of the quantity that is shipped from the State of California alone. Last year over 12,000 car loads of oranges and lemons and this season the estimated crop is 15,000 to 18,000 car loads, and still there are thousands of trees in the State of California which have not come into bearing yet. The total shipments of green, deciduous fruit, such as peaches, plums, pears, grapes, etc., from California for the season of 1899 was 7,500 carloads; 400 cars of walnuts shipped from that State the past season. Why, there is one vineyard in the State of California, situated about 200 miles north of San Francisco, in the heart of the Sacramento Valley, which belonged to the late Leland Stanford, which embraces about six square miles. The wine and brandy productions of this estate alone is so large that Uncle Sam erected a bonded warehouse upon it to collect his taxes. The warehouse itself occupies over two acres of space.

Add to this vast amount the canned and dried fruit shipped from that State. It is estimated that 200,000,000 pounds of prunes are grown on our Western coast annually and these prunes have almost entirely driven from our markets the immense quantity of foreign prunes which were imported to this country only a few years ago, and at the present time large quantites of California prunes are shipped to France, and there re-cured, French style, and then sold for genuine French prunes.

The raisin crop of California for the year 1898 was 2,400 car loads, and the total amount of money received for the

same was $2,506,812.38, and now we have but very little use for Malaga, Valencia and other kinds for foreign raisins which only a few years ago were supplying our markets.

Now we will come nearer home, but let me say before leaving the State of California, that the opinion formed by myself on a recent visit to that State, is that California is setting an example in the raising, handling and marketing of her products which we here in the East will do well to follow.

Eight thousand car loads of grapes shipped from one county in the western part of New York State in one season. Add to this the large quantities grown in other parts of the State and the quantity would astonish any of us. The large amount of apples grown in this country is estimated as high as 20,000,000 barrels some seasons; but I will not go farther in this line, for I trust you will agree with me that we have great country and although there is an immense amount of fruit growth at the present time, still the fruit industry is in its infancy and that in ten years' time the increase will equal or exceed that for the past ten years.

Come, now, back to our own New England States, and we can safely say that the fruit industry is greatly on the increase. Still there is a great chance here right in your own State of Connecticut. Fortunes can be made in the fruit business just as well as to go to California, and you will not have to pay the railroad company one-half or two-thirds of what you get for your products in order to get them to market, as you have the advantage of being near markets, and the very best ones at that. If you put the work in your fruit orchards here that they do there, you will get equally as good results.

Now what is necessary to make a success of the fruit business?

First you must go into it to stay, and this reminds me of a story which, perhaps, many of you have heard. The people in a small country town or village thought they would fix up the village cemetery, and raised the necessary funds to do the work with, and one of the improvements which they made was to erect a nice fence around it.

They fixed up a nice gateway and an arch over the gate, then they wanted an inscription of a few appropriate words to put on this arch over the gate. They thought over many things, searched the Scriptures, etc., but could find nothing that pleased them. Finally an Irishman came along and they said:

"Pat, cannot you think of something which would be appropriate?" He thought a moment, and then said: "I have it! 'We are here to stay!' " Now, that is exactly what you want to do when you start into the fruit business, either the raising or handling of it. You want to go into and stay in it long enough to learn the business, and if you do this and study and work hard enough, success will crown your efforts.

One reason why there are so many commission merchants who do not make a success of their business is, they do not stick to it long enough. I started in the commission business in Worcester eighteen years ago. We run the business about two years and when we took our second annual inventory we were no better off than when we commenced—or, in other words, had not made one cent over and above our running expenses. My partner was rather discouraged and gave up the business. I continued it, and the second year after that time was one of the best years we ever had, and our profits were several thousand dollars over and above our expenses. Why? Because I had learned how to do the commission business, and had customers, so we could dispose of the goods to advantage.

Now, the second necessary thing to make a success is to cultivate and raise the right kind of fruit. You must know what kind is best adapted to your climate, soil, etc., and if you have any doubts about it, ask the advice of some one that is posted. Do not go in haphazardly and make a failure on the first start. Then get your trees, vines or bushes of a nurseryman that you can depend on. Then a very particular thing is to get them set out right. You cannot take too much pains in this respect. If they are properly put out your percentage of loss will be small.

Now, you will probably say, "He is a commission merchant; what does he know about putting out fruit

trees?" Well, I do not pretend to know much about it, but I was born and brought up on a farm. My father had a large nursery and a large orchard, and I can assure you I know something about growing and setting out fruit trees, as I have had the backache many times from stooping over straightening out the roots and tucking the dirt nicely around them—and this is another very important point and you cannot be too particular about it.

Now we will take it for granted that you have started along on the right track, and now you must have patience and let nature take its course; that is, as far as the growth of the tree is concerned—but please do not forget that nature wants lots of help these days, as the enemies are great in number and very diligent in their work. All kinds of insects, bugs, etc., are ready and more than willing to cut back and undo all that nature and you both can do. Therefore, spray your trees, kill the worms, hunt out the bores, scrape off the rough bark where many of them make their homes and after awhile your labors will be crowned with a fine crop of good fruit.

And now do you know how to put it up in proper shape? Have you studied the wants of our markets and can you pack a barrel of apples so it will go to Liverpool and not be sold there as a "slack"? If you can, you can do well, and I think you will be capable of putting your fruit up for a market in proper and satisfactory shape. I will not lead you along in this line although much could be said, but it is an easy matter for any one to learn to do these things right.

We will say, now, that your fruit is grown and put up in proper shape. Now, you must make others think so, and here is what will test your judgment, and if other peoples' judgment is like yours, then you will make a success in this line, but if their judgment differs from yours, poor prices will result, and therefore all your labors will be a failure. You cannot be too particular in putting your fruit up in neat, attractive, uniform sized packages, and have it good on top, good on the bottom and good in the center. Then have a brand of your own. Call it something and then talk that brand and keep talking it. If you

have the Red Label Brand of peaches, tell them the bottom of the basket is as good as the top—if not better. Keep talking it, and after awhile the people in our large markets will believe you and then there will be no trouble to sell your fruit at top market price, and they will call for more than you can furnish. So I say again, you must keep talking your goods.

If you toot your little tooter,
And then lay down the horn,
There's not a soul in ten short years
Will know that you were born.
The man that grows the pumpkins
Is the man that plows all day,
And the man that does the humping
Is the man that makes it pay.

Not only is this true in the fruit business, but it is also true in other lines of goods that are put upon our markets. Notice the different brands of soap. See how extensively they are advertised. Think of the vast amount of money spent for this purpose; but it certainly must pay or they would not do it. See what a trade Curtice Bros. Co. of Rochester, N. Y., have worked up on their Blue Label catsup. Even the children know what that is. Why, I have a liitle boy, seven years old, who is very fond of catsup. He cannot read very well yet, but he can tell the colors, and when he sits down at a strange table and sees upon it a bottle of catsup, he will turn the bottle around to see if there is a Blue Label upon it. Why? Because he knows that if it has, it is all right, and he thinks it about the best catsup made. Therefore I call your attention again to the necessity of establishing a brand. I am quite sure your President will agree with me in this from his own practical experience in that line.

Now, we have grown the fruit right; got it put up right —under a brand of your own. Now, how shall we put it upon our markets; or, in other words, how shall we market it to the best advantage. If you have only a small quantity, you may be able to place it on your home market; but, if a larger quantity, you will have to seek

other markets, and it will be necessary for you to find a good commission merchant to consign to—and here is another particular thing to attend to, for I can tell you right here that all commission merchants are not honest, and I can also tell you that there are plenty of them that are and men who will look out for your interests. Therefore, ship your goods to a well-established house, that has a good reputation, and do not be fooled by new houses that are constantly springing up in our different cities and are sending out fictitious quotations as a bait to get shipments. Some will even make sales on the first and second shipments way up above the market in order to get larger shipments into their hands, and then, after they have secured those, you can whistle for further returns, but they will never come, and the looked-for check you will never have to take to the bank to get cashed.

Now, when you find a good house—one that tries to do right—stick to them; put confidence in them, and do not turn them down if they happen to make you a poor sale once in awhile, for I can tell you that there is no commission house in existence who can so regulate the market as to always make good sales. We always strike days in every season when the market is overloaded, and those are the days when we commission merchants work the hardest and get the least praise, or rather, get the most curses; and it is not an uncommon thing for us to get letters telling us what poor sales we made on their goods—which we very well knew, before they told us—and in the same letter saying they will ship us no more goods, but will ship to some house that will give them an honest sale. Now, this is very consoling, after you have got up in the morning before daylight, worked hard and in all ways you could think of, to dispose of your shipments to the very best advantage. But we get used to all such letters; or, in other words, I suppose we get hard-hearted, and are not troubled by such letters so much as you might think we would be, for it is often the case that a shipper, who has left once, returns to us after a few days of wandering, and when they do come back they make the best of shippers and men whom we can depend on for regular shipments thereafter.

And now, another thing. Do not expect to get your sales before the goods are sold. Very often a farmer or grower will make a shipment of apples or something of that kind to-day. About to-morrow morning he will commence going to the postoffice for his returns, and go himself or send some one to every mail that arrives thereafter, and about the second day will write a letter wanting to know why we do not send his sales, and then, possibly, goods have not arrived, or if they have, have not been in the store only a few hours. Now, we commission merchants like to sell goods quick, but you must recollect you cannot sell until you find a customer, and that is not always an easy thing to do, especially if we happen to have a stormy day. No; do not begin to worry the day you make your shipment, but just sit down and take it easy; give your commission merchant time to find a customer, and a good one, and then he can and will give you just the very best sale he can and just as quick as he can.

A small boy overheard some young people talking. One of the young ladies said: "I should not think myself properly married unless I was married in a church." The little boy said: "I should consider myself properly married when I got a good wife."

Now, that is just your case. If you get a good commission merchant—one that you can put confidence in—just consider yourself properly fixed, and do not try to find fault with him all the time, or apply for a divorce until you have lived with them long enough to know what kind of a firm they are.

Now, before I leave this subject of marketing your goods, I want to say a few words in reference to putting your goods on your home markets. A great many growers of fruit and vegetables who make a success of raising these things do not make a grand success of selling them, and I contend that a grower cannot afford to spend his time peddling his goods from a wagon. Only a few years ago nearly all the vegetable growers near Worcester sold their produce from their wagons. I gave a talk before the Massachusetts State Horticultural Society in Worcester three or four years ago and spoke some on this point, and I con-

tended that they could not afford to sell their goods in this way. I pointed out where they made a failure in the business. One of the points I put forth was that they demoralized the market by cutting prices on each other. For instance, one team would come around and offer cabbage at $1.50 per barrel, but the marketman would not buy. The next man would come along and offer to sell at $1.50. The marketman says: "No; such a man offered at that price, and I would not buy." "Well, I will sell you a barrel for $1.40." "No; won't buy just yet."

And the next man comes and he asks $1.50 and the marketman says, "Such a man offered to sell me at $1.40." "Well, then, I will sell you a barrel at $1.30," and so it goes, and finally the marketman buys at $1.20 or $1.25—no established market and no bottom to it; simply a go-as-you-please market. No; concentrate your goods in the hands of good commission merchants. Then they can establish and hold a good, steady market. They are in the business the year around and make that their entire business and certainly they ought to know more about selling goods than a grower, who only peddles a few days out of the year.

Well, of course they said I was drumming for business. Well, perhaps I was and perhaps I was not. At any rate, I was telling them what was true, and they began to think the matter over and figure the expense of a man and team to do this business, and after a while they thought that I was not far out of the way, and last season two-thirds of the growers that come into Worcester with their produce put it in the commission men's hands. It was not an uncommon thing to see a dozen teams or more unloading their produce in our store each morning, and a string coming all day, and the next morning they could go into our office and get their money all in a lump to take back with them, and I am pleased to say that already we have had several come to us, asking if we would handle their produce the coming season, and men, too, that we did not have last season. No; I contend you growers better pay ten per cent commission for selling your goods to some good commission house, rather than to spend your time

selling them yourself, and also that at the end of the season you will have more money by so doing.

You people here in the State of Connecticut have a great chance to raise fruit and do well at the business. Your soil is right for apples, peaches, plums, strawberries and many kinds of small fruit, easy to cultivate, and plenty of chances to get help to do the cultivating. There is money in the peach business for you, and I must say that one of the finest--if not the finest—car of peaches we ever handled came from the orchard of your President, Mr. Hale, here in Connecticut, and what he raises I know others can, providing they do as he has done. Strawberries are, I think, one of the most profitable crops a man can raise. I know there is work about it; but you will get good pay for all the work you put on your strawberry patch, whether it be one acre or ten. There is always a good market for good strawberries, and you need not be afraid of raising too many. You are right here between several markets, all of which you can reach in a few hours. Then there is always a good market for currants, raspberries, blackberries, etc., all of which can be made a profitable crop by proper care and attention.

But I will not take your time further. And my advice to you Connecticut fruit men is, Spread out; see what you can do; and in a few years you will not only surprise us commission men by the amount of fruit you raise, but you will surprise yourselves, also.

Now, I have given you quite a talk on the fruit business, and if it has been a little one-sided—on the commission merchant's part—I know you will excuse me, as you all know I am a commission merchant myself. But I can assure you I have only said what I think is correct. After you have followed my advice in all that I have said here to-day, I am very sure that you will make a success of the fruit business, and that after you have been in it for a few years you will have a good bank account to your credit and plenty of money in your pockets to jingle.

I thank you all for your kind attention, and if there are any questions you wish to ask me, I shall be pleased to answer them to the best of my ability.

At the close of Mr. Blodget's very interesting address, the following questions were put to the speaker:

Question—Mr. J. S. Kirkham: Will Mr. Blodgett tell us how to pack a barrel of apples?

Answer—Mr. Blodget: What I called right packing, others might not. In the first place you have got to start with good fruit. And to get good fruit you must be careful how it picked. You want to pick right into your basket. It is a good idea to hang the basket in the tree and so be able to lay the apples as picked right into the basket, and not throw them into the basket, and so run the risk of bruising them. Then you want to get clean barrels, not some old flour barrels, but good, new barrels are the best. Of course, you some times have to use old barrels, especially this year, when they have been so scarce. But always have new barrels if you can get them. Then double face your apples at the bottom, using nice apples with stems on; then the next basket you put in wants to be pretty good apples, although of course you want good apples all the way through. I should first put a paper in the bottom of the barrel before this facing, and I should have my brand on this paper. There is a special barrel head paper, cut to fit the head, now on the market; it has a smooth, white surface on one side and the other a corrugated surface, which gives considerable elasticity and relieves the pressure on the apples.

After you have put in one basket of apples, shake the barrel down very carefully; in fact, they should be very carefully shaken down after putting in each basket. Fill your barrel up to about one and one-half inches above the chime and then press down very carefully and put in the head. Some people use one layer of poor apples to press against. I think I should also face the top of the barrel. In Boston we have to open the top of one barrel and then the bottom of another, and so it is necessary to have both ends look equally well.

In reply to question of Mr. Ives, Mr. Blodget said he should use the very best and highestc olored apples for the facing.

Mr. Merriman: I have always made a practice of washing out old barrels perfectly clean, then lining with paper and stenciling my name on the top of every barrel.

At President Hale's request, Mr. Blodget explained the method of small-fruit selling practiced at his store in Worcester.

Mr. Blodget: Formerly all the small fruit growers about Worcester who came in daily with from one to ten or fifteen bushels of berries, hawked them all over the city, and were steadily cutting prices to a demoralizing extent. There was no standard of value from hour to hour. The growers were induced to abandon this practice and bring all the fruit to the store for sale, coming in between five and six o'clock in the morning. These lots were all spread out on the auction-room floor—each man's lot by itself—and where any one had more than five crates they were divided up into five-crate lots of the most uniform grade. Auction was called for seven o'clock each morning, when all the leading buyers of the town—peddlers, and buyers from adjoining towns—all assembled; had a quick chance to see all the goods in town; form a judgment of what style would suit their trade best, and bid accordingly, each lot was numbered from one on, consecutively, and it usually took from twenty-five to thirty minutes to sell four to six hundred crates of berries. High grade fruit brought high prices, and low grade fruit, low prices; but the whole average to the farmers was greater than in the old way and it cost them much less for the delivery, and every one was better satisfied.

President Hale: I have watched this plan of berry selling for a number of years and am sure it gives the growers fifteen per cent better prices than the go-as-you-please plan of each one for himself.

Question—Mr. Stocking: In packing a barrel of apples and pressing in the head, is there not danger of pressing the apples into each other and bruising?

Answer—Mr. Blodget: If you are packing apples for long distance you must pack tightly and press hard; but, if for short distances—say Boston or New York—there is

THE CUMBERLAND RASPBERRY.

Considered the "Business Black-Cap" Raspberry by Growers Everywhere.

no need of packing so close; or if they are to be put in cold storage they need not be packed as tightly.

Question—Mr. N. N. King: Would you pack apples right off the trees, when warm?

Answer—Mr. Blodget: Get them into the barrels as soon as possible; they color all right and keep better if you put them into the barrels quickly. Early picked fruit keeps best.

Mr. Dennis Fenn: The people in my town pack a good many apples; they take a heavy block from a three-inch plank and when they shake the barrel they press this block down onto the apples, so as to keep them in place while shaking the barrel, and so they don't shake the apples on the surface every time you shake.

Mr. Blodget: That is all right, if you have your block well padded.

President Hale added that in pressing down the head on the last layer, it is a good plan to use some pads of mineral wool that will act as a buffer and so not bruise the apples.

Mr. H. L. Fairchild favored the Society with a very valuable paper on new varieties, which was attentively listened to.

## NEW VARIETIES AND THEIR BEHAVIOR IN CONNECTICUT.

By H. L. Fairchild, Nichols.

A week ago I was in New York at the meeting of the Eastern New York Horticultural Society, and there I heard Professor Beach from Geneva speak on the same subject which has been assigned to me to-day, and he told how, at the Experiment Station at Geneva, there were seven hundred varieties of apples. Now, I have nothing on so large a scale as that; I have simply a few varieties on an acre or two, which I am experimenting with, and even this is filled up mostly with one or two kinds of fruits.

With regard to berries, I have nothing to say, because, in these days, when new varieties are coming up so rap-

idly, I have not the opportunity to experiment with them as need be; I understand there are five hundred new varieties of strawberries every year.

In pears I will first speak of the President Drouard. It is a wonderful bearer of good size, but I never succeeded in ripening it until this winter, when it was only fairly good. Another variety is the Garber, which, to my mind, is far better than the Kieffer. It is larger size, much better looking, and when ripe is of a nice, yellow color, red cheek, which would sell at once; but it is not a pear to eat, it is simply for cooking. For the Garber, I should say that for many people it would be preferable to the Bartlett, but it is not to be compared to the Bartlett any more than is a quince. It has a peculiar flavor entirely distinct from any other fruit. The Garber is larger than the Kieffer, but entirely different shape; it is the largest nearest to the blossom end; it is two or three weeks earlier than the Kieffer, therefore ripens better in this climate.

In quinces I have fruited the Bourgeat and find it same size as Orange, but it was more troubled by the Quince curculio than any quince known. Of the few I had, there was not a fair quince in the whole lot.

In peaches, I set a Waddell tree in 1898 and last year it bore three or four peaches of a creamy color, with red cheek, flesh creamy, firm, juicy and excellent flavor, and it is now as full of blossom buds as any tree I ever saw; it is evidently a very early bearer and promises to be very nice.

In cherries, I have tried one or two of the western cherries. The Suda is a very late, sour cherry, of very good quality for a western sour cherry. When cooked with the pit in the fruit is slightly acrid, but with the pit removed it is very good, indeed. I bought a tree of it in 1892; it bore about twelve that season, and it has been increasing every year since, and last year I had about a half bushel. The Ostheimer is a brilliant, light red cherry, but I can imagine no possible use for it unless for a summer drink, like lemonade.

In grapes I simply mention the Campbell's Early on my place; perhaps the best word to describe it is to call it vinous. It is a good looking grape, as good as the Con-

cord, but when I can raise the Green Mountain, Worden, Delaware, Brighton, and grapes of that class, I have no use for the Campbell.

In regard to apples, we have some pretty enterprising nurserymen here in Connecticut, but I think there are people outside of Connecticut who can give pointers to the Connecticut nurserymen and beat them easy in some kinds of apples. There was an apple which originated near Georgian Bay some few years ago. Samples of this apple and descriptive circulars were sent out and it was very widely advertised throughout the country, and in various ways very high recommendations were obtained for it—among others, from officers of the American Pomological Society. The trees were offered for sale at $1 apiece, six to seven feet high. I ordered twelve trees in the fall of the year. They came down on that train on the Hudson River that ran into the river. They lay there a week, and finally came to me with the roots entirely exposed. I set the trees and found they were grafted about four or five feet from the ground, and had grown on an average of about eighteen inches. Then I tried a Southern apple—Loy—which had a very high recommend in New Orleans. I found it to be a good grower—a very characteristic grower. It was about the same size as the Sutton Beauty; also about the same shape. It was a fair keeper, but not as high quality as the Sutton Beauty. It was a good dark, red color, very uniform in shape and would be a desirable apple, but it does not cook well; like a sweet apple, it is not tender.

In regard to the Sutton Beauty, I only know the tree; it is a very thrifty, upright growing tree. From present indications I think it will be an abundant bearer, but not as large as the Baldwin. The Banana apple I exhibited at the Exhibit in Meriden last year. I never saw an apple so badly stung by insects as this variety is; there seems to be something about them that causes the insects to make them their special objects of attack, and I feel perfectly sure it is going to destroy its value. The Akin, an Illinois apple, I have a single tree of, and this year, on one limb of the graft, I had between forty and fifty apples; they

were almost perfect, every one of them; only one single specimen being stung by the codling moth. It is a good keeper, probably fully as long a keeper as the Russet; it is not quite ripe and fit for eating yet. It is not quite as large as the Sutton Beauty, nor as good. The Walter Pease originated in Somers, Conn., and has been practically controlled by the Shakers at Enfield. I find it to be a very nice apple; quite as large, but not as uniform in size as the Gravenstein, and more oblong. It is a brilliant red color, very tender and juicy and of a mild, pleasant flavor. It is not a very long-keeping apple, but very tender, so tender that it often bruises badly in falling from the trees. I consider it well worth a trial. It is very vigorous in growth; a tree set in '95 has fruited twice and grafts at the top of one tree produced nearly a bushel this year.

Now we come to a consideration of the various varieties of plums. There was a plum sent out not long ago as Wasse Sumomo; it is exceedingly early; in fact, the earliest of any plum of equal quality at all to be compared with it; this is a very desirable feature. There is a question if it is not identical with the Berger. The Japan plums do not possess the definite characteristics of other trees; in some years one variety ripens about a week ahead of another, and perhaps the next year they will turn around and ripen just the other way. The fruit of the Wasse Sumomo is larger than the Berger; that is, larger than the Berger ever reaches with me, and is nearly gone before the Berger is fit to eat.

The Gold plum on Mariana roots seems to be a moderate grower, by no means vigorous; in fact, quite a slender grower. In fruit, it is larger than most of the American; of a beautiful yellow color, bright cherry on sunny side; very handsome. There is no Japan plum that approaches it in firmness; in fact, it is so firm that it is not particularly good to eat and no better for canning than the average American plum. The Juicy plum is rightly named. It is a plum with a yellow ground, more than half covered with red; it is a very beautiful fruit; but not very high quality, although an abundant bearer. The tree has one serious

THE MEEKER CHERRY.

A New and Promising Cherry, Originating in New Haven, Conn., and Now Being Sent Out for Trial by the Elm City Nurseries.

objection—it makes branches with such an abundance of foliage that with even a gentle rain it is liable to break down.

The Wickson plum is a very upright grower and one of the most promising plums I know of. It blossoms very abundantly, but even though set in the midst of a dozen other varieties, it sets only a moderate quantity of fruit, which is of very large size, bright carmine color, covered with whiteish bloom; flesh rather dry and a good keeper. With the Hale plum this year I have had a different experience than ever before. The tree is a tremendous grower —no Japan like it in this respect; but the fruit has failed to ripen up properly until this last year. In this very dry season the plums ripened up about with the Chabot, and they held on the trees longer than any other plum ripening at that time. It is of a light green color, with a delicate bloom and spots of red on one side. It is the most beautiful fruit one can imagine; in the basket they look cool and inviting, and they are just as good as they look. It was the best in flavor of all the Japans this year.

In Chestnuts, the Paragon is a good grower and an abundant bearer. It commenced to bear four or five years ago with me, and has been increasing from year to year and continuing its growth. The chestnut has the peculiarity of making the fruit on the new wood, just like the grape vine. This fact should be particularly remembered in cutting grafts and in trimming the trees, for the new shoots which bear fruit grow from the last half of the previous year's growth.

One of the most interesting features of this session was an address by Professor S. A. Beach of the New York State Experiment Station, entitled "The New Apple Culture." Professor Beach occupied nearly an hour speaking in a very instructive and practical way of this important subject.

## THE NEW APPLE CULTURE.

By Professor S. A. Beach of the New York Experiment Station.

A comparison of the methods of managing apple orchards which were common fifty or more years ago with those which are now followed by some of the most successful fruit growers of the country, shows that newer ideas and methods are winning recognition and are gradually being adopted in those sections where commercial apple orchards are found.

The management of apple orchards which is based upon the recognition of the newer ideas may well be called the New Apple Culture, in distinction from the kind of orchard management which was generally in vogue a generation or more ago.

A brief consideration of the development of apple orcharding in this section of the country, will bring out more clearly some of the differences between the old and the new apple culture. The apple, together with other cultivated fruits from the old world, was brought to this country by the earliest settlers of New England and of other parts of the Atlantic coast, being propagated by them by growing seedlings and to some extent by grafting some of the cultivated Old World kinds. As the settlements were extended the apple was taken into the newer regions till it finally was distributed to all parts of the interior. In speaking of the development of apple culture in this part of the country, permit me to refer to it as found in New York State, because I am less familiar with its development in Connecticut. I doubt not, however, that there is much in common in its history in the two States, especially since a great many New Englanders were found among the early immigrants to New York.

*Primitive Orchards.*—As the settlements were gradually extended back from the coast, the settlers who overspread the interior of New York State and hewed their farms out of the forest, planted apple seeds around their new homes. The fruit from the seedling trees would now be called "natural" or "seedling" fruit, in distinction from grafted

fruit; in the early days, however, and even within the last half century, the fruit of these seedling apples was called "common" fruit, which indicates the abundance of such trees at that time. Such apples were used chiefly for feeding to stock and for cider making, being on that account often called cider apples. The surplus, if there was any, was allowed to rot because there was no profitable way of disposing of it.

At the beginning of the last half century large nurseries became more numerous, the newer orchards were planted with grafted trees, and the seedling trees were no longer used for this purpose. In many parts of New York, especially in the eastern two-thirds of the State, there are still seen portions of the primitive seedling orchards, varying in age from fifty to one hundred years or possibly more. The old trees, having outlived their companions, stand as silent reminders of the days of the stage coach, the hand loom, the spinning wheel, and the paring bee, and of the time when the farmer generally considered his winter supplies incomplete unless there were several barrels of cider stored in the cellar.

*Mixed Orchards.*—Grafted fruit was also common in the orchards of the early settlers. Sometimes the entire orchard was planted with grafted nursery trees, but taking the State as a whole, in the earlier days, more often some of the trees in the seedling orchards were top worked to improved kinds and so the ordinary farm orchard was made up partly of "common" or of "cider" apples, and partly of grafted fruit. A great diversity of varieties of grafted fruit was usually included in this class of orchards, because the object was to furnish the home with fruit from the first of the season through the autumn, winter and spring, and even till early summer. Transportation facilities being crude, there was little encouragement for shipping apples to distant markets. When the farmer went to town he would often try to reduce the surplus stock by taking with him a few bushels of apples, put up in meal bags, to offer in trade for articles which he wish to purchase. In many a country store might be seen displayed for the inspection of customers, Bell-flowers, Greenings, Pound Sweets, Rus-

sets and other old-time favorites, with bloom on their cheeks, betraying their ride in the meal bag, and, as is usually the case with artificial bloom, adding nothing to their attractiveness.

The other ways of disposing of surplus apples were in the manufacture of cider, boiled cider and vinegar, or in drying the fruit. For the latter operation the kitchen stove was usually surrounded with festoons of quartered fruit, which had been patiently strung on twine, or the prepared fruit was spread on racks above, or on papers beneath the stove.

*Commercial Orchards.*—It was not till after the first quarter of the present century had passed that commercial apple culture began to be developed to any extent, even in the southern part of the Hudson Valley. Mr. W. D. Barnes of Middle Hope tells me that the planting of commercial apple orchards did not receive much attention in Ulster County till about 1830 to 1835, although Robert Pell of Esopus had about twenty acres of Newtown Pippin trees from which he exported fruit as early as from 1825 to 1830.

As transportation facilities gradually improved by the opening of canals and railways, the farmers in many interior localities found that they could send their fruit to other than local markets and receive profitable returns. Accordingly, commercial orcharding began to increase, especially in regions which were found to be naturally favorable to the production of good apples. From 1850 to 1860 the number of commercial orchards which were planted increased rapidly, particularly in western New York, and continued to increase thereafter till commercial apple orcharding assumed the important place which it now holds in the horticultural interests of the State.

*Original Methods.*—It is not surprising that the methods of managing the old-time farm orchards should at first be continued with the commercial orchards which followed them. Some of these methods which are no doubt well suited to farm orchards holding a position of subordinate importance in the farm economy, should now generally be discarded for better ones, when dealing with commercial apple orchards.

When we inquire how the apple orchards of a generation or more ago were generally managed, we learn that often they were pastured with sheep or hogs, or possibly with other stock. If the ground was too rough to be cultivated, this was all that was done to them, except that in some cases they were given a little stable manure or straw mulch occasionally. If the ground could be cultivated it was usually treated like other farm land, either being devoted to farm crops or pastured, as suited the convenience of the owner. The prevalent idea seemed to be that it was good economy to get as much as possible out of the land in the way of pasturage or of farm crops. If in addition, a crop of apples were secured it was looked upon as so much clear gain. Very often the trees were planted too closely to permit of the best results, and the mistake was sometimes made of including too many kinds of apples in the commercial orchard.

As years passed by and the soil lost some of its virgin fertility, the crops of fruit appeared to come with less regularity than formerly, and questions arose in the minds of many thoughtful fruit growers as to what was the best and most economical course to pursue in order to supply the trees with needed fertility and keep up their productiveness. Naturally, the methods which were adopted varied with the local conditions and the ideas of the owners. Probably no one line of treatment was advanced more vigorously and persistently than the keeping of the orchard in permanent sod and pasturing it very closely with sheep. It was advised that more sheep should be put into the orchard than the pasture could sustain, and then by feeding the sheep well the fertility of the land would be uniformly increased because the manure would be distributed very evenly over all the orchard. In addition to this, the sheep, by devouring all of the wormy apples which fell to the ground, would assist materially in lessening the number of the codlin moth.

The theory was good, but in too many cases the practice, in the hands of the ordinary orchardist, failed to secure the most satisfactory results. The codling moth still preyed upon the fruit so that some method other than feed-

ing the wormy apples to sheep had to be adopted if the fruit was to be kept free from worms. Moreover, when the pasturage withered up, in the dry weather of late summer and early autumn, as it usually did, the tree was left without moisture at a time when it was especially needed for the best development of the fruit. The fertility of the soil was useless without moisture to make it available to the tree.

*Tillage.*—The next development along this line was the adoption of a radically different plan of managing the apple orchard, which is one of the features of the new apple culture, namely, thorough tillage during the principal growing season followed by the use of some crop to cover the ground during fall and winter to which the term "cover crop" is now commonly applied.

I believe that tilling apple orchards, not primarily to kill weeds, but because the tillage is good for the trees, was first practiced systematically by orchardists who had received considerable training in the management of nursery trees. Year after year they saw in the nursery innumerable object lessons which showed the great benefit of tillage to the trees. One gentleman, who is the proprietor of some of the largest and best apple orchards to be found in western New York, and who was formerly engaged in the nursery business, has for years practiced clean cultivation in his apple orchards with excellent results. But whatever may have been the origin of the practice, it gained little headway among the orchardists of the State till it was advocated persistently by such men as Bailey and Roberts of Cornell University and by influential writers for the horticultural press. As a result of this campaign for tillage and cover crops, about five years ago a few of the more progressive fruit growers began to till their orchards. Their neighbors were not slow to see the good results which usually followed where the work was properly done, and consequently within the last three or four years and especially within the last year, the number of cultivated orchards has increased largely.

I have said that the plan of tilling the orchard is radically different from the other methods of treatment which

our fathers handed down to us, and this is so, not simply because it involves different horticultural operations, but because it is based upon a different philosophy. Under the old *regimé* the hope of getting profit incidentally from pasturage or from farm crops, interfered with managing the orchard primarily for the trees' sake. When a man decides to give the orchard thorough tillage during the growing season, he has brought himself to decide to do first of all what is best for the tree. He manages the orchard first of all to get fruit. He commits himself to the idea that the best crop to grow in an apple orchard is apples.

The reasons for tilling the orchard may be here stated briefly without attempting at this time to discuss them at length.

In the first place, tillage improves the physical condition of the soil, making it a more congenial home for the feeding rootlets.

Secondly, by conserving the soil moisture by tillage, the time during which growth takes place is often increased because the activities of the trees are less liable to be checked in periods of drought. A continuous uniform growth is generally conceded to be best for the trees and for the fruit of the current season. It appears reasonable also that with trees of bearing habit tillage during the principal growing season favors the development of fruit buds for a crop of fruit the following year. Goff has shown that the apple fruit buds may begin to develop quite early in the season. He found that the first distinct features of them may be seen as early as the last of June, while by early autumn their development for that season had practically ceased.*

*Cover Crops.*—But where constant tillage is practiced and no vegetable matter is returned to the soil, the amount of humus must necessarily decrease. The humus is important not only because of the plant food it contains, but because it increases the moisture holding capacity of the soil. For this reason it is well to provide for keeping up an abundant supply of vegetable matter in the soil. Under ordinary conditions this can be done most economi-

* Goff, E. S., 16 An. Rep. Wis. Exp. Station, 1899.

cally by the use of a cover crop. In addition to the benefits which arise from increasing the supply of humus in the soil, the cover crop is valuable because it retains certain forms of plant food which, were the soil bare during the fall rains, might escape. By the use of leguminous crops the amount of nitrogenous plant food in the soil may be increased. Moreover, in certain soils, by the use of cruciferous cover crops, the amount of available phosphoric acid may doubtless be increased.

Dr. Jordan has shown that certain cruciferous plants, cabbage, rape, turnips, etc., are able to appropriate certain supplies of phosphoric acid in the soil which plants of other orders, corn, toamtoes, peas, etc., do not appear to be able to use. This indicates that in soils which have a supply of what is ordinarily classed as unavailable phosphoric acid the use of rape, rutabagas, and other cruciferous plants, for cover crops will increase the amount of available phosphoric acid, because these plants having once built it up into organic compounds, when they decay it is liberated in forms which other plants can use.

By the wise use of cover crops, therefore, the orchardist may reasonably expect not only to increase the moisture holding capacity of the soil, and retain plant food which otherwise might escape, but also he may expect to increase to some extent the supply of certain kinds of available plant food.

*Use of Fertilizers.*—After having, by thorough tillage and the wise use of cover crops, provided for the economical use of the natural fertility of the soil, then one is in the best position to take up the great question of adding to the plant food in the soil by the use of stable manure or commercial fertilizers. This is a problem the final solution of which each one must work out by asking the trees in each orchard what they can use economically on that particular soil.

*Taking Care of the Leaves.*—The New Apple Culture is characterized not only by the methods of fertilizing and managing the soil for the purpose of keeping the roots in good working condition, which have just been considered, but it recognizes more than ever before the importance of

keeping the leaves also in good working condition. The early apple orchards were planted oftentimes with no adequate conception of the size to which the trees would eventually attain. Sometimes the trees were put no more than twenty-five feet apart. Red varieties, like Baldwin, in such cases eventually bore much green fruit, because the sunlight could not penetrate through the dense tops of the crowded trees. Many people in Connecticut, I see, have made this mistake and neglected to provide for the free access of air and light to all parts of their orchard trees.

The leaves constitute what I have often called the "food factory of the tree." It is in them that the crude food materials which have been absorbed from the soil through the roots are combined with other material from the air and built up by the help of sunlight into organic substances which really feed the plant, thus putting into available form the food which the plant needs to sustain life, support growth and develop fruit. Leaves which are not reached by sunlight cannot do their work. If we fail to protect the leaves from injurious insects and diseases we expose the food factory of the plant to serious injury. Probably few fruit growers have a right conception of the injury which these pests do to the leaves of their orchard trees. He who would make the apple orchard most profitable must fight these insects and diseases intelligently, thoroughly and persistently, in order to make the conditions as favorable as possible for the tree to perfect new growth, develop fruit of the current season and fruit buds and leaf buds for the following year.

There are now so many of these pests that it is usually impracticable for the fruit grower to treat each separately. The best plan to follow is to learn definitely what diseases and insects are infesting the orchard and then combine the necessary treatments in the fewest possible applications. The number of treatments and the time of application should be varied somewhat to meet the conditions which are found in the orchard. Where the applecanker disease, the bud moth and the case bearer are abundant two treatments should be given before the blossoms open, as will be indicated a little later; but under other conditions

one treatment before and two after blooming may prove most economical. A general line of treatment against the diseases and insects named is herewith suggested. It has stood the test of practical experience.

*Spraying.* First Treatment: For bud moth, case bearer, apple scab and apple canker, use Bordeaux Mixture and Paris Green as the buds are swelling, but before the first green tips show. For apple scab alone, this treatment is not economical. Other equivalent poisons may be used instead of the Paris Green.

Second Treatment: For bud moth, case bearer, canker worm, tent caterpillar and other leaf eating insects. also for apple scab and apple canker, use same treatment just before the blossoms open.

Third Treatment: For canker worm, tent caterpillar, and other leaf eating insects. for codling moth, also for apple scab and other fungous diseases, use same treatment just after the blossoms fall.

Fourth Treatment: Repeat the third treatment for same pests after an interval of from ten to fourteen days.

In preparing the Bordeaux Mixture dilute the copper sulphate solution to two-thirds or more of the number of gallons required by the formula. Mix the lime with an abundance of water and pour into the copper sulphate solution and stir rapidly. Add lime in this way till the potassium ferrocyanide test shows no free copper sulphate. Lastly, add the insect poison. Bordeaux Mixture made in this way stays in suspension for a much longer time than when the ingredients are less diluted at the time they are mixed.

The lime may be slaked in large quantities and kept in good condition till needed if covered with water. The use of the potassium ferrocyanide test does away with the necessity of weighing the lime. It is not necessary either to weigh the copper sulphate because it may be kept in a saturated solution, each gallon of which will contain practically three pounds of the copper sulphate. It may, therefore, be measured as needed instead of being weighed. You may know that the solution is saturated by always keeping in it more copper sulphate crystals than it can dissolve.

*Insects With Sucking Mouth Parts.*—There is a class of insects which cannot be destroyed by arsenical poisons. I refer to those which have sucking mouth parts. Such insects are fought by using insecticides, such as whale oil soap, kerosene emulsion, etc., which kill them on coming in contact with their bodies. The San Jose scale is an insect of this class which is just now attracting much attention. Instances are reported in which apple trees have been killed by this insect. It is difficult to kill it with whale oil soap at the strength ordinarily used against insects of this class. Its spread may be restricted by summer treatment but it must be fought principally by using winter treatments, which must be made very thoroughly. The introduction and increase of seriously destructive insect pests, such as the San Jose scale, must tend eventually to force commercial fruit culture into the hands of those who make fruit growing a specialty. I believe that from now on the fighting of such insects as this intelligently and thoroughly must be one of the essentials to success in apple culture. Those who are not ready to do this had better not plant apple orchards.

In considering, as we have done, some of the phases of the subject before us, it becomes evident that the New Apple Culture contains much after all that is not new. Its leading characteristics stated in brief are:

First. Thorough tillage for the average soil.

Second. Judicious use of cover crops.

Third. The use of stable manure and commercial fertilizers according to the evident needs of each particular location.

Fourth. Keeping the foliage in good working order. Incidentally, this requires a proper exposure of the foliage to light and air by means of correct planting and training; also the protection of the foliage from disease and injurious insects and a plentiful supply of available plant food.

Fifth. In training the tree, having regard not only for the proper exposure of the foliage to light and air, but also for facilitating the treatment of diseases and insects.

Sixth. Keeping the bark unbroken and as free as possible from wounds.

In the discussion that followed the question was asked: Is it necessary to thin an apple tree every year, and when is the best time to do it?

Professor Beach answered: Of course it is necessary to trim the trees, yet I look upon severe trimming as something to be avoided if possible. It is always a disadvantage to wound a tree, but we want the trees for business and they must be annually pruned to keep them in the form we require. In trimming, we should also bear in mind the spraying we are to do and to keep the trees sufficiently open so we can reach the interior of the tree with the spray; also so that the sunlight can get through to the inner and under leaves of the tree. The best time for trimming is probably in June, the latter part of June, if we consider the subject only from the standpoint of having the wound heal as rapidly as possible. The new wood is then forming most rapidly and the wound heals most rapidly. Of course this is at a season when we have many other demands upon our time, and so we have gotten into the habit of trimming in the winter, although the wound may not heal as rapidly.

Question—Mr. Innis: Why do you use the Bordeaux Mixture as the first spray, rather than the copper sulphate?

Answer: Not because it is more effective as a poison, but simply because it sticks better and shows how well the work is being done. The copper sulphate solution washes off more readily, I believe, than does the Bordeaux Mixture.

Question—Dr. Leroy A. Smith: What will be the effect on the soil, say after fifteen or twenty years, when the trees are sprayed as recommended for the New Apple Culture by all these arsenical poisons? Would it not have the effect of poisoning the soil and making it sterile?

Prof. Beach: That is a question which has occurred to several people and has been discussed by several papers. I have made some experiments bearing on this question. The result of that work shows that using Bordeaux Mixture at the old strength of six pounds of copper sulphate to twenty-four gallons, that with three or four annual applications it will take eleven or twelve hundred years for

enough poison to accumulate in the first foot of soil to have even a slightly injurious effect on vegetation, even if none of the poison leaches away.

Question—Mr. Ives: Is it advisable to spray as late as the middle of July or first of August on Greenings that show spotting?

Prof. Beach: I have never felt that it was wise for the Experiment Station to advocate late spraying of fruit, especially since the English people made such strong objection to sprayed fruit a few years ago. Some of the spray is likely to show on the ripe fruit, if sprayed after it is one-half grown, and may detract from the market value.

Question—Mr. Fenn: Is there not danger of injuring the trees by pruning in June on account of tenderness of the bark at that time?

Prof. Beach:—In our experience there has been no serious difficulty on this account?

A number of topics from the question list occupied the time until half-past five, when a recess was taken until the time for the evening session.

## *Evening Session.*

One of the pleasantest features of the entire meeting was the session on Wednesday evening, at 7:30. President Hale presided. A goodly number of members remained for this session, and in addition many of the people of of Hartford and vicinity availed themselves of the privilege of listening to the interesting program prepared.

With the opening of the meeting came a discussion of the important question: What can this Society do to make wider markets for Connecticut grown apples, peaches and plums?

Mr. Platt: Some have spoken of an organization that would have some power to dispose of fruits for us.

President Hale: You cannot arrange to market unless you can get growers to agree on some uniform plan. If you will appoint a committee here from this society and

then let them canvass the State and see how many will join such an association and agree to pay so much per tree as a foundation fund for work, it will be a starter in the right direction. You can roughly estimate how many trees you have in the State to-day, how much to pay per tree, and then let that committee work along some intelligent line and recommend some action which, if adopted by the majority of orchardists, will go. My own idea is, you have got to have a sort of fruit exchange or clearing house for the shippers. The small grower, with twenty-five or fifty baskets of plums and peaches per day, is at a disadvantage; if he attempts to ship by express he might as well give up at once. There must be some way for these small growers to combine so as to load full cars at some central point and ship to certain commission men at different cities for a reasonable distribution, and let that committee direct it all right along, and if you do not get as large returns as you think you ought to in a week or so, do not quit, but wait, and the final result will be better than you could ever do alone. The trouble is, we are all too independent; you will find that three-fourths of the growers will not be likely to go into it at all.

Mr. Ives: How would a combination of fruit growers affect the general public favor of the State?

President Hale: You have got to sell your fruit, and all the combination is for is for intelligent distribution; not to corner the price, but to see to intelligent distribution, and that it goes into the hands of honest, intelligent men, so as not to overload one city and lower prices, while another city, perhaps not a hundred miles away, is short of fruit and would gladly pay well for it.

Mr. W. H. Blodget: I have had dealings with some of the Western New York associations, and they have accomplished just what you are talking of to-night. It has worked to the advantage of the small, as well as the large growers. A fruit inspector was appointed in every large city. The fruit was all put under a label issued by the association; there were two grades made of it and anything below that was put into the wine fruit. The head secretary is in communication every morning with the

inspectors in the different cities, as to the number of cars be wants in that city at that time and the class of fruit he wants; and thus the fruit is loaded into cars and shipped to the various cities as per the instruction of these inspectors. Large and small growers put their fruit right into the same car and when it reaches its destination, it is inspected by the inspector in that city and then put into the hands of the commission man, and the growers have nothing to do with the market, except packing and loading the fruit, and finally receiving their returns from the inspector. This has been carried on very successfully and has brought more money to the growers than they got before the organization of this association. If you here enter into an arrangement of this kind and pack your fruit honestly and label it so people will know they are getting just what they buy, you will have no trouble is marketing your fruit.

Mr. Innis: I have thought this over a good deal in times past. Something in the way of intelligent distribution of our fruit must be done in order to produce good markets, and right along the lines you have been speaking a committee should be appointed to look over the matter throughout the State. The old motto "In God We Trust" is a good one, and we do, but I believe right along that same line, "In union there is strength," and some kind of a union ought to be made, and I would therefore suggest that a committee of five be appointed by the Chair to look this matter up and canvass the orchardists of the State and see what can be done, with the understanding that a reasonable sum be appropriated to that end.

The sentiment of the members present was freely expressed and seemed to favor the plan of raising a committee to look into this matter and to support any business arrangement reported by such committee, the larger peach growers being especially desirous of coöperating in this plan of marketing.

At this point the hall was darkened to allow of some very attractive pictures being thrown upon the screen, and the President introduced Professor L. R. Jones, Botanist of

the Vermont Experiment Station, who delivered a wonderfully pleasing and instructive address on "Bees, Flowers and Fruit." The lecture was illustrated with many fine lantern slides, and was attentively listened to by all.

It is impossible to reproduce Professor Jones' lecture here, owing to the fact that he spoke without notes and much of the talk was in explanation of the pictures thrown on the screen.

It is regretted that only this brief abstract can be given. Among the many practical points brought out by Professor Jones, were the following:

My subject embraces the relation of the flowers, through bees, to the fruit.

Education does not, as many seem to think, consist in deluging with facts. It is rather that one be stimulated to ask questions and learn. Ask Nature! Start out by asking the how and why about everything connected with our work as fruit growers.

Plants live to store up nutrition and to reproduce themselves.

Here the speaker explained, the process of seed production and how it was discovered and worked out by the early scientists.

Charles Darwin was the master-mind in horticulture, as well as in evolution and philosophy, and the fruit grower should have the greatest respect for him. He was the first to work out with completeness the seed process in plant life. This principle is now conceded to be of the greatest importance and closely related to the profits of the farmer.

We know that the *fruit* is but a secondary product—the *seed* is the fundamental thing with plants. We are, however, more interested in the *fruit* product and the principles that govern its production.

It has been found that an excess of pollen does more than simply develop the seed; it stimulates the fruit also. Our fruits must have cross-polination in order to furnish enough stimulus for their best development. Pears, for example, are mostly self-sterile. This crossing that is so necessary is largely done by insects, but the bee is

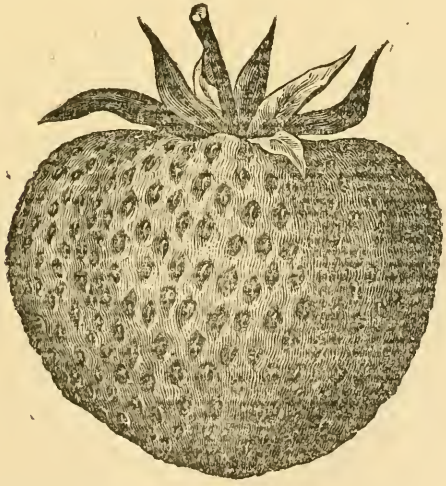
especially the friend of the fruit grower in this important work.

At the close of the lecture, Professor S. A. Beach was asked to tell of his experiments in the crossing of grapes. The Professor responded briefly.

On motion of E. M. Ives it was voted that a committee on nominations be appointed, to submit a list of names for officers to be voted for at to-morrow's election.

The President appointed E. M. Ives of Meriden; G. S. Butler of Cromwell; J. C. Eddy of Simsbury; A. C. Innis of Stratford; N. S. Platt of New Haven.

After a pleasant social hour, the evening session came to a close at 10 o'clock.



## Thursday, February 15th.

*Morning Session.*

The second day of the annual meeting began with the opening session at 10 A. M.

President Hale in the chair.

Mr. Albert Bernhard of Meriden addressed the Society on the subject of "Wine-making from Connecticut-grown Grapes." Mr. Bernhard, who is an enthusiastic believer in Connecticut wines, called attention to the samples of his wines exhibited at this meeting, and continuing, said:

### WINE-MAKING FROM CONNECTICUT-GROWN GRAPES.

By Albert Bernhard, Meriden.

The samples of wines here submitted are made from Connecticut-grown grapes, either white, red or black, and come from the vineyards of Mr. Chas. I. Allen, Terryville, Conn., and Stephen Hoyt's Sons, New Canaan, Conn. Experiments made since 1893 in Waterbury have conclusively proven that wine-making can be brought to a success in this part of New England. When speaking of wine, I do not allude to the sweet wines made generally by many people all over the State. I mean pure fermented grape juice, treated just the same as is customary in the best wine-making regions of France. White, red and black grapes, as Early Victor, Worden, Concord, for port and claret; Niagara, Green Mountain and Delaware for white, sauternes or Rhine wine, were used in producing these wines, which I am sure will compare favorably with either California or even imported wines.

The wines of the more Southern States, say Ohio or Missouri, have a sweetish taste, are too uniform in there

aroma or bouquet. California wines resemble French wines the most.

New England, and more especially Connecticut, is well adapted for the perfect fermentation of the grape juice, the different wines with proper and unceasing care, attain the high qualities of European wines, as for instance, claret of 1895, or Delaware, also of 1895 vintage, rank as high as imported, as several instances will prove.

In 1898 a box of sixteen bottles was shipped to France and was sampled by connoisseurs, people in the wine business who knew what they were about. They mistook our native wines for California, and even some 1893 and 1894 clarets were found as good as some Bordeaux clarets. In a restaurant of a Connecticut city, 1895 claret, in sampling, was also found better than imported wine.

The only trouble, if we may call it trouble, is the acidity, which can easily be overcome either by a small addition of sugar or by the planting of better qualities of grapes. Our vineyards produce more juice to the acre than in California. Take one acre of vines planted 8 x 10, say, 545 vines, will probably produce the third year, about 1,500 pounds of grapes, which, at 7.50 gallons per 100 pounds, make 112 gallons; but the fourth, fifth and succeeding years the crop will be much larger, provided the vineyard is kept up to its highest producing capacity. Three tons is an average which will give you 450 gallons of pure juice.

Some of this wine, the white, when sweet, finds a ready market, but claret, port or sauterne, will require one year or much more to produce a perfect wine; the repeated racking off of young wines give them in the following years, their brilliant clear color, their bouquet and fruitiness.

The market value of new wine is fifty or seventy-five cents a gallon, but old, matured wines range from $1.50, $1.75 to $2.50 per gallon.

What is to be aimed at is *quality*, and we can produce *that*, as shown by the samples. Poor wines, and quantities of them, will never do; there are too many gallons already on the market, but *good, sound and health-giving products*, which go to build up the worn-out system and help to

restore force and vigor, will be welcomed and give Connecticut a place amongst the wine producing States of the Union.

Wine-making is *an art* which requires a long training, and not unless a man has been brought up with it from youth is there any chance to attain the perfection of the French wine producers.

These samples are from a few hundred gallons made in 1895 and 1897, when residing in Waterbury, and have had ever since the best of care, being racked off every three months. They are the natural result of well-regulated fermentation and of vigilant and constant care. Naturally, if better grapes were grown, say some of T. V. Munson's new varieties or other, it would be possible to perfect the quality. To attain this I had started a small vineyard in Waterbury for the testing of new varieties like Eumelan, Black Madeira, T. V. Munson, Elvira No. 100, and have succeeded in making five gallons, which is two young a wine to bring before you, but at another meeting will bring samples of same. It is a mixture of different varieties of grapes.

Mr. Charles Leigey of Berlin, another extensive grape grower, seconded the remarks of Mr. Bernhard, and declared that wines can be produced in this State equal to those of California and even Europe.

A very valuable paper was next read by Professor A. G. Gulley, Horticulturist at the Connecticut Agricultural College, entitled:

## THE RELATIVE INFLUENCE OF STOCK AND CION.

By Professor A. G. Gulley, Storrs.

This paper, while containing many notes from the writer's experience, will also be largely a compilation of the effects noted by other observers widely spread, using only those that seem authentic. It may be truthfully said that many experiments in all the lines mentioned have been made and no such results noted. Yet if our case is

shown to be true it demonstrates that the changes observed can take place. These results will be considered under several heads.

First, as to change of habit of the tree by stocks. All will at once call to mind the dwarfing often produced by the use of certain stocks. This usually has been attributed to the lack of nourishment furnished. However, it frequently happens that the grafted tree is planted so deeply that it roots above the point of union, yet those trees never grow as freely as when on free stocks. A. S. Fuller states that this dwarfing often does not show at first, but develops with the age of the tree. The reverse action is often seen. That is, more than an average growth is made, as when the plum is budded upon the peach, an effect that continued for at least five years in one lot of trees that the writer observed, or until nearly all produced fruit. These were European plums.

In root-grafted trees, no effect has been observed. On the contrary, if dissimilar varieties are put up parts of the same root each will grow on in its own form and entirely unlike the other. Even different parts of the same root have no visible effect upon the growth. No doubt the very small amount of stock used will account for this. The character of the stock is not strong enough to assert itself. When older or larger stocks are used then the effect is more or less evident. As to the effect of different ages and varieties on the same kind, I shall refer to a paper I heard read in 1890 by Mr. N. A. Beecher of Flushing, Michigan. He both root and top grafted the Red Canada on various stocks, seeking especially for strong growth. The average given is of six trees:

| | Trunk Diameter. |
|---|---|
| Root-grafted, 26 years' growth | 11 inches. |
| Four-year Seedlings, top-grafted, 22 years' growth | 10 1-3 inches. |
| Three-year Northern Spy, top-grafted, 25 years' growth | 13 inches. |
| Two-year Lyscom, top-grafted, 22 years' growth | 15 1-2 inches. |

The latter variety is a very hardy, strong grower, or the growth varied from 2-5 to 2-3 of an inch each year for the full time. But another point was noted. The variation in the growth of the root-grafted and top-grafted seedlings

was much more than where the stocks were of one variety. The root-grafted trees varied from 9 to 12 inches; the top-grafted seedlings from 8 to 12 inches. The top-grafted Northern Spy from 12 1-2 to 13 3-4 inches. The top-grafted Lyscom varied too little to detect. That shows that to have an even orchard the stocks should be of one variety. Benj. Hathaway, another old experimenter in Michigan, found that root-grafted trees were often larger than when top-grafted on young seedlings, yet in most cases came into bearing later.

How does the cion affect the stock. In the case of nursery-budded or root-grafted trees, any nursery boy will tell you each kind has different roots. He knows that some kinds always dig hard, others easy, according to whether the variety has spreading, fibrous or long tap roots. Some well-posted men go so far as to declare that varieties can be told by the roots as well as tops. One very peculiar instance of change of root to suit the top was where a lot of wild plum seedlings were top-budded with some varieties of European plum. At the end of one year's growth on removing the lot every marked tree was found to have a much smaller root than those not changed. The effect was to stop the growth of the root. A Southern grower claimed that plum on peach caused the latter to grow darker and harder. More than that, the borers did not touch these trees, while other peaches nearby were badly eaten. E. H. Hart of Florida states that when the wild sour orange of that State was grafted to lemon it increased in diameter much faster than when marked with sweet orange. Our English growers said the same effect was produced in the quince by putting a strong growing pear upon even an unmarked quince.

Perhaps the case in an English garden, where a wall-trained Ribston Pippin had became unhealthy and failed to grow or bear, shows the influence of the cion as strongly as any. Each alternate arm was grafted to Alexander, the intention being to graft the others the next year, but a change in health and growth was at once noted and the arms not grafted again produced fine fruit. The change of the tree was not carried farther. But whatever the effect

in the change of the shape or growth there is no question that old root is of the same nature as at first, and if by chance a sprout starts from it the latter will in no part resemble the cion. The sprouts to be seen in almost any young orchard are evidence of this.

Second. The effect of the stock on the fruit. Here, again, will come to the mind of many the improvement of the quality and size of some varieties of pears on the quince—or the reverse, where a pear is often much better on pear root. The paradise stock used to dwarf apples shows this tendency to produce finer specimens of varieties grown upon it. The writer once had about twenty varieties so grown, and the effect was very noticeable. Patrick Barry, in the first edition of his "Fruit Gardens," states they come into bearing much sooner—a fact also noted in the dwarf pears.

However, other and more peculiar changes have often been recorded. The Red Canada apple first attracted notice in Michigan from being very often top-grafted on a sweet seedling, which was once very common. The result was, the fine flavored, long-keeping apple, so well known there. Mr. H. E. Bidwell of that State produced three distinct classes of the same apple where top-grafted, several trees each of hardy Black Detroit and Fall Gennetting. The first, small, green, long-keeping; the second, large, very dark colored and early maturing; and lastly, most curious of all, the usually smooth Red Canada showed plainly the scollops or ridged form so prominent in the Fall Gennetting. There are many instances of Baldwin cions from the same tree marked upon nearly different varieties and producing quite unlike fruit. English gardeners have noted time and again where part of a grape vine has been top grafted the fruit much changed from what the cion was expected to produce. A Massachusetts grower claims to much change the acidity of the Red Astrachan by top grafting in Talman Sweet. I could mention others of the same tenor. The fact that anyone can call to mind instances where no such effect is seen proves nothing except that the influence is not evident. The season of a variety can be changed. The late P. M. Augur of

this State gave one instance where the Roxbury Russet marked upon Golden Sweet was much effected in both flavor and season. Several growers of Red Canada fully demonstrate that it is much changed by different stocks, as already quoted. One writer in *Gardeners' Chronicle* states that Aldenburg on Early Strawberry, both early kinds, was carried fully three weeks in advance of its usual season.

Does the cion have influence on the parts of a tree not marked? It evidently did in the case of the Ribston Pippin and Alexander. A Massachusetts grower grafted half the top of a Gloria Mundi with a sweet apple, with the double result of making the sour apple much less sour and the sweet ones affected the other way. An Ohio grower put King upon a tree bearing small green fruit and afterward had striped apples on the ungrafted portion. In ornamental trees and shrubs, instances are very common where top marking with colored or variegated foliage has caused the stock to assume foliage of like character. Ex-President Clark of Massachusetts Agricultural College said one should expect such changes by the cion as the sap is elaborated in the leaves; yet hundreds of cases can be found where no evident change does take place, as where several kinds are on one tree, and almost any one can call to mind where seedlings have been top-grafted and the part left in no wise affected.

*Third. What may we expect of diseased stocks or cions.* Botanists claim that variegated foliage always indicates, or is, disease. That may be produced both above and below the point of union as just stated. Stronger cases can be shown A Mr. Burr of Massachusetts tried putting a long-keeping russet upon a tree that rotted its fruit before it was ripe. He failed. The stock had an influence strong enough to transmit the disease of rotting to the long-keeping variety. Mr. A. G. Downing claimed that the power to transmit disease was the only evident effect of cion upon the stock, and followed by saying that a healthy stock several times continued would not cure a diseased cion, and quotes trees budded with yellows dying both top and bottom. The writer has induced the disease in the stock,

but not as yet in the cion itself. Mr. Smith did it readily. One very curious case of affecting the stock was an attempt to bud a lot of horse chestnuts with a yellow leaved variety. In nearly all cases the buds failed to grow, yet each stock produced yellow leaves as perfectly as the original tree. They evidently were inoculated with disease.

*Fourth. Hardiness.* There is much to show that the cion is affected by the hardiness of the stock, although this can be traced much more often to the better adaptability of the stock to the soil or locality. The severe winters of '74 and '75 killed hundreds of Baldwins in Michigan, when root-grafted or marked low on seedlings, while top-grafted trees usually escaped—that is, were not hardy upon their own trunks, but were upon others.

The peach in England does better on plum roots, the damp climate and soil not being favorable to it. The same kind of tree has often been recommended for heavy soils here, yet has not proved to be so owing to other unfavorable conditions. Conversely we might expect the plum or peach to be better on light soils, yet I find no definite record of such an instance. Some of the peculiar influences recorded are the so-called graft hybrids which may be put under two classes—the split cion, and cion and stock. The first of these, where two cions are joined and said to grow and produce a variety that partakes of both has been to the writer always considered a myth. The sweet and sour apple has been attributed to this source. But when such a man as Thos. Meehan says he has produced them, we must believe it. His experiment is interesting. He combined Rhode Island Greening and Red Astrachan. Of twelve set, three grew; two afterward bore fruit. Of these, the first had the light flower of the Greening, with nearly a Red Astrachan fruit. The other had the Greening blossom, the fruit colored like the Red Astrachan, but in size and shape and stem like a crab. When re-grafted a few years later the hybrid characteristics nearly disappeared, and a Red Astrachan resulted. The sweet and sour apple above mentioned can be accounted for in other ways but could also in this. There are some

very prominent cases where true hybrids have been made between stock and cion, that is, the resulting top partook of the nature of both stock and cion, and this hybrid afterward propagated. Mr. P. Barry thought this probably the source of the sweet and sour apple; the Adams Laburnum and Bizzaria Orange being noted instances. Still the hundreds of thousands of grafts set every year without any such combination is evidence that hybrids are not to be expected. Some experimenters have produced what they called potato graft hybrids—that is, grafted together parts of potatoes and had resulting potatoes that were like neither of the original pieces. It probably has been done, but in most cases there was room for doubt. Professor Bailey grafted together the tomato and potato plants, using each for stock and cion. On his tomato on potato he had tomatoes on top and potatoes on the root. On potato on tomato the plants produced flowers but as is usually the case of potatoes, no fruit resulted. In neither case was there any evidence of hybridization. Of all changes mentioned from influence of the stock upon the cion, none are permanent except the graft hybrids, and possibly disease. Cions cannot carry the change to other trees. It might occur again if a larger number of graftings were made, but is no more certain than the original change itself. Some of the graft hybrids have been propagated. Variegated or diseased trees certainly are.

To sum up: There is plenty of evidence that vigor, size and shape of the tree can be much influenced upon large stocks and often upon small ones, but aside from the common practice of dwarfing with our present knowledge, there is but little certainty as to the result. The reverse influence is often developed, but not often of practical value. On the fruit the stock often has a very marked effect on color, flower and season, also on early producing by the tree. No doubt much could be done by more carefully studying the character of the fruit of the stock before top marking. Hardiness is affected by different stocks, but with it the careful observation of the adaptability of stocks to soil or locality would add greatly to our valuable information.

No doubt exists that disease may be communicated by stock or cion, which simply indicates that great care should be used in the selection of both.

Finally, if fruit growers generally would record carefully the condition of stock and cion at time of grafting; then observe closely the changes afterward, much could be done to establish some laws to guide us in our work.

A brief recess was then taken.

The next speaker was Mr. Edward VanAlstyne of Kinderhook, N. Y., who told of his twelve years' experience in spraying fruit crops. This address, from one of the most thorough and successful fruit farmers of the Hudson River section, was listened to with great interest.

## TWELVE YEARS' EXPERIENCE IN SPRAYING.

By E. VanAlstyne, Kinderhook, N. Y.

The question is often asked, "What is the use of all this spraying? Is it necessary? A few years ago we heard nothing of these various insects and diseases. Is it a notion gotten up by people who have something to sell? By makers of spraying apparatus or dealers in chemicals? Are these *new* troubles?"

I answer by saying that most of these troubles are not new. We have been increasing our plantings of fruit trees and plants, and so have furnished excellent food as well as good breeding ground for the various pests; something more suited to their needs as well as more plenty than the wild plants they originally subsisted upon.

Fruit plantations multiply, so these troubles multiply. Then, too, as we increase our traffic with the whole world, we will continue to bring in new pests and diseases. Dr. Howard says that of the seventy-five insects most injurious to our fruits, thirty-seven are of foreign origin. These are cold, hard facts, and we may as well accept them first as last. He who will not adapt himself to these changed conditions will surely be left in the rear of the procession of

fruit growers. The man who will control conditions, is the man who will be paid for fruit growing as never before.

I do not hold the foolish belief that spraying is the only thing that is going to make fruit growing successful; spraying will not fertilize the soil or cultivate it, nor will it prune the trees. You have begun on the wrong end if you think spraying is all. If I must choose between spraying and cultivating and fertilizing, I should abandon spraying, and cultivate and fertilize.

If growers think they can starve the trees by lack of fertility and cultivation and once in three or four years cut out their summer's fire wood from the trees and call it pruning, and then go to work and spray and effect satisfactory results, they will be sadly disappointed, and, as many have done before, condemn spraying. After we have done all the rest; given thorough fertilizing and cultivation, with pruning, if we want perfect fruit and greatest success, we must spray, and spray thoroughly and intelligently.

I want to emphasize the foregoing facts before saying anything about spraying in detail.

Twelve years ago I was convinced after the best care I knew how to give, that insects and disease were on the increase, and when I first heard spraying talked of I thought, as many have done since, that it was a great disaster and perhaps I might as well quit the business first as last. In the fall of 1886 I had sold my winter apples for $2.55 per barrel, net, for first-class fruit. After careful picking and grading we had one hundred barrels of rejected apples on account of worms and scab. There were about twenty-five barrels of windfalls, besides, out of three hundred barrels that went to market.

If these had been perfect, they would have brought over $250, and they were worth $25 or $30 for cider. I reasoned that if spraying would do what people say it will, it was a good thing for me to try. I found that it would not only give fair fruit, free from worms and scab, but would greatly lessen the number of windfalls. The first year's spraying is often disappointing. Many start in to spray with very little knowledge of what they are spraying for, or how to do the work. They do not do the work at the

right time nor thoroughly, and they are fighting disease and insects that are well established. Hence, the failure to accomplish what they expected. Diseases and insects multiply year after year, and we certainly cannot expect to destroy them by one year's work. Insects do not start out to commit suicide for our benefit, and will not eat the poisoned leaves if they can find those that are free from it. Therefore all the foliage must be covered and kept so if we expect results. The man who gets most from spraying is he who sprays annually, at the right time, for a definite purpose, and covers the whole tree with the mixture. I would not spray a tree that had no fruit on it as many times as one that was bearing, but I would spray it once or more; for insects and disease germs are there and must be held in check lest they multiply. The man who sprays as indicated, need fear no new leaf-eating insects or disease that Bordeaux will prevent.

I asked a friend of mine in Orleans County if he did not dread the canker worm getting into his orchard, as it was all through the orchards in that section. I have heard Professor Bailey say that he could actually hear them eat. He replied: "My trees are annually covered with poison, and I have no fear of the canker worm." That was several years ago, and his orchard is as free from canker worms as it was then. I have seen the time when we took forty-seven large nests of the tent caterpillar from a single tree. For five years I have not had to remove a nest from my large orchards, where we have sprayed; while a young one not in bearing and never sprayed, we had to go through twice last summer and remove them by hand. Why? Because the thorough, systematic spraying has held them in check and destroyed them.

Spraying is working by faith, which is a deal harder than working by sight. Here is a little fungus or insect so small that few have ever seen them. We have got to take some one's else word for what it is, where it is and what will destroy it. To any man who has never sprayed, I say, don't do it unless you are thoroughly persuaded in your own mind that it is the thing to do. Then know what particular thing you are going to spray for; what is

its life history; with what and how can you prevent or destroy it. I believe that only to the man who so acts will success in this direction come. This, too, I want to emphasize: Take the crab fungi out. Scientific men say that they are so small they cannot be seen with the naked eye, but are present in our orchards in a latent state, ready to develop under favorable conditions, these being high temperature and moist atmosphere, during which they spread and multiply with enormous rapidity. Bordeaux Mixture applied over the whole tree will prevent their spread, as the fungus cannot live where it comes in contact with the mixture This means the trunk, limbs, twigs, leaves and fruit. To simply throw a little combination of water, vitriol, lime and poison at the tree, after the fungus has spread, will do but little good, while properly made and applied will not only give us clean, bright colored fruit, but also a vigorous growth of healthy foliage, which means more fruit, a stronger tree, and fruit that will keep much longer than that from a tree with poor foliage. This I have proved more than once. After years of experience with the Bordeaux Mixture I have come to regard it almost with veneration, and had I to choose between that and insecticides, I should without hesitation choose Bordeaux. Its value depends largely in its being properly made. Dr. Sturgis has given us most valuable information in this line, and I would also advise a study of the Vermont Experiment Station Bulletins on this subject.

I have not time to go into detail, only to say that by putting the six pounds of vitriol with half the fifty gallons of water, and the four pounds of lime with the other half, and then combining these two weak solutions, will give a mixture that will stay in suspension, not clog the nozzle, spread easily and remain long on the trees. We always dissolve the vitriol and lime ahead, using as many gallons of water as we have pounds of material, a gallon then represents a pound and all weighing is done away with.

The insect that causes most trouble is probably the codling moth, and while the egg may hatch anywhere on the fruit, it usually enters from the blossom end. There-

fore. if we spray just after the blossoms fall, while the fruit stands upright, the poison will be collected in the cup at the blossom end and is likely to be retained there for a long time, and is pretty sure to be fatal to the worm before he enters the apple. This period, when the apple is in this position with the petals open, may be longer or shorter, according to the season, and varies with different varieties. It will readily be seen that each must watch his own orchard and the different varieties therein to know the proper time to apply the poison to get the most benefit. There is a notion that the tree can be sprayed when in full blossom; from the above it should be evident how false is this theory; nothing certainly can be gained and much lost by spraying at this time, in addition to which it will poison the bees, which are so necessary for proper pollen distribution. No man has any more right to destroy his neighbors bees than his cattle. Instances are on record of the bees carrying the poison into the hives. Do not think for a moment that I think spraying an easy job; there is nothing connected with fruit growing that I dislike so much. When I reach the end of the spraying season, and put away the sprayer, I always feel like singing a "Glory Hallelujah." It is not an easy thing to do, but it pays; that is what we grow fruit for; we want profit as well as fun.

Question: How many times, and when, do you spray your apple trees?

Answer: Usually three times. First, just as the foliage starts, using Bordeaux and Paris Green; I find this just as good as to spray prior to that time. Then after blossoms fall, as noted before; and usually once more about two weeks later, using Bordeaux and Paris Green each time. Last year I did not spray but twice. It was a dry season, and the spray was retained on the trees, having little rain to wash it off. I have Bordeaux Mixture on my trees now [February] that was put on last May. Then, too, we had little weather to develop fungi. Some years it may be necessary to spray four or five times. I use with the Bordeaux Mixture one-half of Green or poison to fifty gallons of water; that is, for apples and pears. With a good

agitator I have never had to burn the foliage. It will take as much as this to kill tent caterpillars and other insects quick, which is an item when a rain follows shortly after the spraying. I believe Green Arsonoid, sold by the Adler Color & Chemical Co. of New York, is just as valuable as Paris Green and certainly much cheaper. It could be bought last season for fourteen cents per pound. For those who are doing much work, white arsenic will be found cheaper still. This needs to be boiled with sal-soda, and while not a difficult job, a beginner had better use the Green, as the simpler he can make the operation the better. I find a good deal of the first spraying can be done best from the center of the tree. This I learned from spraying large elms for the elm leaf beetle, when we put a pair of telegraph lineman's spurs on a man and sent him into a fifty or sixty-foot tree with forty feet of hose and an eight-foot rod. Ordinarily, a good powerful hand pump with a good agitator will do the most practical and thorough work. Half way spraying leaves plenty of uncovered foliage and fruit for insects and fungi to feed on; where the work is thoroughly done there is no choice but to eat and die. From eighty-five to ninety per cent of fruit may be made absolutly perfect if the work is properly done.

To show the advantage brought about by the Bordeaux in giving vigorous foliage, I will cite you an instance that happened a few years ago. My men ran out of Bordeaux, in spraying the Greening trees, and as they were only short a half barrel I told them to finish with Green and water. The next spraying I helped to do myself, and came first to the side of the Greenings that the men had sprayed last. I at once noticed that the foliage was yellow and sickly looking, and as I had forgotten about the lack of Bordeaux, I was planning to give them some increased fertility, but on coming back on the other side, found that side as healthy as any foliage in the orchard, then I recollected that those were the trees one side of which had no Bordeaux. This showed the value of Bordeaux where it is applied and only there.

Now an illustration for the scab on fruit: I have a block of Newtown Pippin trees standing below a hill on

rather heavy soil and too close together; these were thoroughly sprayed three times with Bordeaux and poison. To test the value of the Bordeaux for the scab, I had in the orchard three trees of the same variety on high ground in the outside row, where there was plenty of light and air. All conditions most unfavorable to the development of the scab. These I left unsprayed with Bordeaux. In spite of their favorable condition, two-thirds of the apples were so scabby as to be worthless, while the trees unfavorably located, but sprayed, were as fair as oranges, and pronounced by the buyer the best he had ever seen.

One more illustration to show the effect in ridding fruit of insects. A few years ago I had strawberries in one orchard and as the weather was very wet when we should have sprayed and as the work was delayed, fearing to injure the berries, the orchard was left unsprayed. I sold my fruit that year, guaranteeing it perfect. That from the sprayed orchard sorted out only one barrel out of eleven—and those were good seconds, that brought $1.50 per barrel—that were not absolutely perfect; while the unsprayed orchard, only separated from the other by a picket fence, yielded only two barrels out of three that would go into the guarantee. Besides, the ground was covered with windfalls, while in the first orchard hardly any had fallen.

I think therefore, that spraying pays, if done intelligently, at the right time and thoroughly, and if not done this way it had better not be attempted.

Mr. VanAlstyne answered a number of questions pertaining to spraying, after which a recess was taken until 1:30 P. M.

## *Afternoon Session.*

On assembling for the afternoon session, the Secretary presented a communication from the managers of the Pan-American Exposition, to be held at Buffalo May to November, 1901, urging the coöperation of the Society in arranging for an exhibit of horticultural products from Connecticut. Secretary T. S. Gold of the State Board of Agriculture addressed the Society on the same subject, and suggested that the various agricultural organizations in the State work together to secure a creditable display of products. The Society voted to refer the entire matter to the Standing Committee on Exhibitions.

A communication relative to Connecticut fruits at the Paris Exposition was also referred to the same committee.

On motion of Mr. W. E. Waller it was voted that the Secretary of this Society be paid a salary of fifty dollars per year.

An amendment to the above was offered by Mr. Merriman, and carried, to the effect that the Secretary's salary date from January 1, 1899, and that Secretary Miles be paid for the past year.

## ELECTION OF OFFICERS.

The hour having arrived for the election of officers for the ensuing year, the report of Committee on Nominations was called for.

Mr. E. M. Ives: Your committee would respectfully recommend the following names for the officers of this Society:

President, J. H. Merriman, New Britain.
Vice-President, George S. Butler, Cromwell.
Secretary, H. C. C. Miles, Milford.
Treasurer, R. A. Moore, Kensington.

County Vice-Presidents:

Hartford—J. C. Eddy, Simsbury.
New Haven—Dennis Fenn, Milford.
Fairfield—N. H. Sherwood, Southport.
Litchfield—C. I. Allen, Terryville.
Middlesex—G. W. Spicer, Deep River.
New London—L. P. Smith, Lebanon.
Windham—Lucien Bass, Scotland.
Tolland—M. P. Coleman, South Coventry.

On motion of Mr. Waller it was voted that the Secretary be instructed to cast one ballot for the officers as nominated by the committee.

The ballot was cast and the above list of officers was declared duly elected for the ensuing year.

On motion of Mr. Allen a vote of thanks was tendered Mr. Hale for his very efficient services as President of the Society since 1895. Expressions of appreciation of Mr. Hale's efforts in behalf of Connecticut Pomology and the esteem in which he is held by the farmers of the State were heard from many members present, and the resolution was passed unanimously.

President J. H. Merriman accepted the Chair in a brief speech of thanks.

The resolution concerning the appointment of a committee to investigate the fruit markets and to report better methods of distributing fruit crops, was taken from the table and after some discussion was adopted. The following committee was then appointed by the Chair: J. H. Hale, N. S. Platt, A. C. Innis, E. Rogers, J. N. Barnes, A. C. Sternberg.

Mr. Hale at this point announced the presence of Mr. A. S. Baker of Southampton, England—manager of an extensive cold storage company—who, at his suggestion, was prepared to tell the Society something about the foreign markets for American fruit. Mr. Baker was gladly welcomed by the Society and invited to address the meet-

ing, which he did in a very instructive and interesting talk as follows:

## ENGLISH MARKETS AND HOW TO REACH THEM.

By Mr. A. S. Baker, Southampton, England.

London is the largest market in the world, with the largest consuming power of any city of equal population. The Americans produce the finest class of fruits, yet you are getting the lowest price of any people on earth, in the best market the world has ever seen. Now, why is this so? The reason is just this: Take, for example, the apple. There is no apple like the American apple, with the exception of some few that come from Canada. Our best selling apples in the English market are the apples that come from Tasmania. We annually import $13,000,000 worth of apples from there, besides those that come from the United States and Canada. The Tasmania apples sell in London at $3.75 per bushel, while the very best price obtained for American or Canada apples is $3.25 per barrel. This is a very great difference, and is due entirely to system of packing. The packages used in the United States and Canada are so unsuitable, so cumbersome. You ship your apples in barrels. The Tasmanian apple cannot be considered a competitor in any sense of the word—although we buy such an enormous quantity—since in that part of the world the season is just the reverse from yours here in the States—August and September being late winter months there. When your fruit here in America is ready for market, apple trees are in bloom in Tasmania. The apples from Tasmania are put in the London market in perfect condition. They are a little dry, to be sure, and lacking in flavor, but this is due probably to the tropical climate through which they have to pass, and yet in spite of all this they bring, in the London market to-day, $3.75 per box. Really, the fruit is not one-half as good in quality as yours from the States, but it is carefully graded, of uniform size and honestly packed in the size packages that the English-

man wants. That is what makes one bushel of apples from Tasmania sell for as much or more than three bushels in a barrel from the States.

This box that the Tasmanians ship in is about twenty-two inches long, eleven and one-half inches wide, and ten and one-fourth inches deep, outside measurement, and holds fifty pounds of apples. Here in America where you pack your apples in barrels, you put a few good apples at the bottom of the barrel and a few good apples at the top, and too often fill up the middle with apples that should never be shipped at all; they are only fit for evaporation or making cider; but if they must be shipped, ship them as culls and you will get as much for them, as culls, as you will for the whole quantity shipped in the way you are now doing. Then you have three different sizes of barrels—large, medium and small. The English have become suspicious of the American apple, and they are not sold at auction unopened, like the Tasmanian apples; they must be opened up and inspected; sample barrels are opened and emptied on the warehouse floor, inspected and priced accordingly, which is always low, only estimating on the poorest in the barrel and allowing nothing for the best. All Tasmanian apples that are packed up to the required standard are stamped and guaranteed by the Sidney Board of Trade, and it is this guarantee which helps to sell them. When we see that stamp of the Sidney Board of Trade we know the goods are all right, and they are sold at sight.

Out of the enormous number of fruit growers in the United States, only one or two have ever come over to England to make a study of our methods.

These were from California and they are now putting their apples up in boxes, with the result that they sell at the same price as the Tasmanian apples. I have yet to see boxes of apples from these firms sell for less than $3.75. We have come to know their brand and when we see it we know it is absolutely honestly packed and it is sold without question or opening. These boxes are less expensive to make than the barrels; the sides are orange veneer shook, the ends are three-fourths of a inch thick and bound with wire when ready to ship. The apples are

always wrapped separately in paper, and then packed, a layer of apples and a layer of paper, then another layer of apples and so on. The object of all this is, if one apple becomes decayed it will not contaminate its neighbor.

Now, in packing apples in barrels the trouble is just this, the apples have a tendency to become heated in the middle of the barrel, and if we try to remedy this in cold storage, by using a lower degree of temperature, to permeate to the center, we will chill the outside apples. If you pack in boxes they will not only keep longer, but you will ship twenty to twenty-five per cent more goods for the same freight charge, which is a profit in itself; freight on ocean steamers is at so much per ton of forty cubic feet, and you cannot fully occupy this space with barrels. A gentleman in New York the other day told me of a man who packed his apples in boxes and they brought him $5 at the port in New York. The only remedy for your present unsatisfactory condition is for the different Boards of Trade and different Pomological societies to have a board of inspection, or some competent man as inspector, who sees the fruit well grown, packed and then puts the brand of that board of inspection upon it. Dealers will soon learn to look for that brand and will pay a fancy price for it. The quicker this is done, the quicker you will begin to get the same amount of money as is now going to Tasmania. The only competition you will have is Canada, but you are in the habit of meeting this competition at home and there is no reason why you cannot meet it in foreign countries. It is the part of wisdom always to study the wants and tastes of a good cash customer.

England buys from the United States $640,000,000 every year and pays cash; the world has never seen such a customer as England, and if her power is broken you will never see such another. Why is it, that the United States, with the finest soil and the finest climate in the world, and with the most intelligent, progressive people, are getting to-day for their produce the lowest price of any country in the world? American butter never brings more than ninety-five shillings per hundred weight, while Australian butter sells for 112 shillings per hundred

weight. Eggs from France in the English market sell for thirty-four cents per dozen, while American eggs bring only twenty-two cents. We imported from the United States last year, 13,694,000 cases of eggs. All these food products are sold at auction, which is the fairest method in the world. The wholesale market opens at 2 o'clock and closes at 7 in the morning, and it is the busiest place on earth. Each morning they sell 1,400 tons of fresh meat with the food products that go with it, for the English, like the Americans, do not yet eat meat alone. Now, in the matter of eggs. The English like the brown ones, they don't like the white ones; of course they buy them, but at a lower price. Here in this country you see them, white and brown, large and small, all together; they should be graded, the same as your fruit. The large one in one package, medium in another and small in still another. If they are only selected by size and uniform color and so packed, you will get as good a price as any one. Packing, alone, is not enough, but you must grade according to size, appearance and color, and you will find you will get three times the money you are now getting for the same article.

You, here in America, raise large quantities of peaches. We can never raise them in England. The only peaches we have, besides the hot house peaches, are the peaches shipped from Canada, and these often sell at two shillings apiece; $2.50 for a small box containing five.

I have talked with the leading California shippers, and they thought it impossible to ship to London; but Canada does it with profit, and I have faith in the intelligence of the Yankee that what Canada can do he will do, too, with equal profit. Many in this country seem to think you cannot put paper wrapped fruit in cold storage; but you can, and it will never fail you, as long as good, sound fruit, properly selected, is shipped.

The shipping of grapes from this country is in its infancy. We have been dependent upon France for them. Canada, however, has been experimenting with grape shipments, and they have profited by a hard experience, and to-day their grapes are selling at a very good price. About eighteen months ago they first tried shipping

Niagara grapes, but there was a good deal of iron about the soil on which they were raised and the grapes had an iron taste about them. These grapes came to London and immediately sold on their appearance, but the next day they came back and the money for them was refunded. They were then sent to Glasco, hoping the Scotchman would eat them, but they were not accepted, and the last I knew of them they were piled up among the waste of a certain commissionman waiting for the garbage man to carry away. They are now shipping a better kind of grape—the Catawba, which stands shipment well and is better flavored.

The plums shipped from this country always find favor, as do also the oranges, and I believe the day is coming when the California navel orange will bring the highest price of any orange in the English market. Most of our oranges now come from Spain and Italy, but they do not compare in flavor and size with the California orange.

When customers have once proven a certain brand to be reliable they insist upon having it, regardless of what else the dealer has on hand. When you go before a class of buyers, it is not a question of prices, but a question of whether you have something fancy, and if you have, you can get your own price, even to the two shillings for a peach. I believe in the coming season, in time for the fall crop, you will find plenty of accommodations with any of the Atlantic steamers fitted up with the nicest kind of refrigeration and they will handle your goods in the most careful manner from the time they leave the American port until they reach the other side. In shipping via Southampton, we have large cold storage warehouses there, at deepest water, where two largest ocean-going steamers can lay along side and unload at one time, and facilities for taking out as many as 100,000 packages an hour, and cars run directly into these cold storage houses, and as it is only one hour and forty minutes to the center of the Covent Garden market, London, produce can be kept in storage until market conditions are all right and then be put on the market inside of two or three hours.

And yet, with all these facilities, short trip and proper facilities for handling upon arrival, there is something more to be done, and that at this end of the line, otherwise you have your labor for your pains. It must be put up right.

Now, take it in the matter of chickens. A chicken dressing five and one-half to six pounds readily sell at eighty cents, but the average chickens coming from America weigh only about four and one-half pounds, and sell for fifty-four cents per pair. Small chickens are not wanted in London market. Then there is the matter of dressing; you must never cut the head of the chicken off, as you frequently do in this country, as the Englishman will think some animal has killed it. Of course there is a sale for all this inferior stock. After the business of the day is over at seven o'clock in the morning, whatever is left on hand is sold to the costermonger at a reduced rate, whatever can be gotten for it. There is a million of these costermongers in and about London, with their little carts and donkeys, who peddle out this stuff at a small price. It is cut up into small pieces and sold to the small families in the tenement districts. It is a sight to see the costermonger come into Covent Garden in the morning with his small bag of still smaller coins and see him count it. I have seen turkeys sold for a shilling each, and I have seen turkeys sold that same day, from Canada, no better than those that came from America, but put up as the English market requires them, at seven shillings six pence. Turkeys and chickens should not be drawn, but plucked dry, with a little frill of feathers left around the head, which should be left on; also a bunch of feathers on the tip of the wings and on tip of tail. They should always be killed by breaking the necks; never allow the skin to be broken, as the English are afraid of microbes being introduced into places when the skin is broken. Here, in this country, you pack them in barrels; a layer of fowl and then a layer of ice, and so on. In this way it either becomes water logged from the melting ice or else it becomes badly torn or bruised from the ragged edges of the ice. One bright dealer in Boston had discovered what

was wanted in the English market and was catering to it in a measure, by buying the barreled poultry that came into market, unpacking and drying it out in cold storage, and then boxing the unbruised specimens and shipping to England in a cold, dry condition, and so successful had he been that only recently he has received an order for 1,000,000 pounds poultry, to be delivered as soon as he could put it up.

To get the best price in the English market, boxes of suitable size to hold one dozen fowls should be used, made after the style of an orange box, with a cross partition in the middle, so that six fowls will be in each compartment; packing them alternately heads and tails.

What I have said is enough to show you that you have a customer on the other side who will pay you to put up your produce in the way he wants it; otherwise you will have your labor for your pains. The Englishman pays the highest price of any man on earth, providing he gets his goods as he wants them.

The speaker was asked many questions, showing the lively interest taken in this new question by the fruit growers present.

Question—Mr. Ives: Will you tell us how the peaches you speak of as selling for two shillings apiece are put up?

Answer—Mr. Baker: They are put up in baskets similar to your strawberry baskets, four or five, paper wrapped, in a basket, and then packed in crates, as your strawberries are. I think a better package would be one divided into individual sections like your egg packages.

Question—Mr. Innis: In this apple box you speak of, is there a cross section through the middle—in the Tasmania box?

Answer: There is a cross section of a half-inch board through the middle, similar to an orange box, while the California box is without such a partition. While the ends are of solid material, the sides are of two veneer slats and there is a space of about a half-inch between for ventilating purposes, as apples and everything else containing the germ of life needs air to breathe.

Question: Are these boxes made in this country?

Answer: I think not at the present time; but it is a very simple matter for any box factory to make them. Oranges that come from Spain and Italy are packed in boxes made from shooks that come from Maine, as America is the greatest timber country in the world.

Question: How much pressure do you want to put upon the apple in packing it?

Answer: Just enough to keep it solidly in place, but not enough to bruise it at all. The box holds fifty pounds, which is a legal bushel under the English Pure Food law, the same as fifteen ounces makes a dozen eggs, so that some times ten eggs make a dozen, if large, while at other times it takes sixteen or seventeen small ones.

Question—President Merriman: In shipping apples to England, would it not be best to pick and pack them immediately in the orchard, and at once ship to cold storage in England, then hold there until markets were best, rather than hold them on this side of the water?

Answer: It is best to put them in cold storage and hold until the latent heat is all out of them, then they can be shipped and will arrive on the other side in most perfect condition, without the bloom being lost. This is done without any trouble from Tasmania, which is 15,000 miles away, the fruit coming through the hot climate of the Red Sea, reaching England in fair condition although a little dry—in spite of all this they sell at $3.75 per box.

Question: How does the Baldwin compare with the Ben Davis in the English market?

Answer: The Baldwin has been a great favorite in England, but I am told it is not a good keeper; this is due to the latent heat in the center of the barrel, which develops a sort of dry rot at the core. The apples that find the best favor in the English market at present are the Ben Davis, Northern Spy, Newtown Pippin and Russet. Then the Jonathan is prized very highly, as is also the Rhode Island Greening. The Baldwin is well liked, but they don't like the dry rot, but this can be gotten rid of if you use the right packages.

The next speaker of the afternoon was Mr. A. G. Sharp of Richmond, Mass., well known to our members as a very successful grower of berries and other small fruits. Mr. Sharp read an able paper entitled:

## SMALL-FRUIT CULTURE—NEW VARIETIES AND BEST METHODS OF MARKETING.

By A. G. SHARP, Richmond, Mass.

*Mr. President and Brother Fruit Growers of the Connecticut Pomological Society:*

Some time last month your Secretary requested me to read a paper at this meeting on "Small Fruits, New Varieties, Best Methods, Profitable Marketing," etc.; said he wanted an up-to-date man. I replied that I did not think I could fill the bill, as I was still cultivating as my main crops the Bubach strawberry and Cuthbert raspberry, though I have tested many new varieties and made careful inquiries about others that were highly recommended, having been inclined to stick to old friends as long as I can use them profitably, rather than depend on untried new ones; for I have found, as no doubt most of you have done, that no cast iron rules can be followed in fruit growing, either as regards varieties, best methods of growing, or marketing of small fruits. Fifteen years ago I had more confidence in my opinions on these points than I have today; for then I thought I had found most of the secrets of success and could overcome obstacles. But we are constantly finding new difficulties in the way, new insects to fight, increasing plant disease, new conditions or changes in methods of marketing and greater competition to face. True, it hath been said, "There is room at the top." To a certain extent there is, but the top is so much higher now that we must keep climbing a little higher each year.

Only a few years ago any creamery butter would bring a higher price than most dairies, but now we find there is a difference in creameries and it is asked what creamery it is from, and not every pound of butter sells at the same

price simply because it is put up in fancy squares and rolled in clean butter paper. It takes time and attention to the little details of the business in all its parts—not only breed, but feed, handling, style of packing, all bear their part. Exactly so with small fruits at the present day. New fruit is not always best, neither are new methods for us, yet we must keep trying to increase productiveness and lessen expenses, and remember that quality and appearance are as necessary as productiveness.

My burden partially rolled off as I noticed on the program just ahead of me the name of Mr. H. L. Fairchild, who has had a larger experience in testing new varieties, and further, his experience would likely be of more value to you near his location.

Perhaps it would interest some here to state how I raised my best crop of strawberries, which was the one I picked in the season of 1896—320 bushels from one and eleven-sixteenths-acre piece.

The land was heavy clay; had been in grass, mowed and pastured for ten or twelve years, during which time the whole field of three acres had only the manure from one cow. I purchased the field in the spring of 1894 and spread on it three cords of manure per acre, plowed this in, and planted potatoes, using Stockbridge potato manure in the drills; dug the potatoes middle of August and as there were some spots of quack grass I harrowed it thoroughly and sowed the piece with barley, to more thoroughly subdue the quack and make a covering for the ground during winter. I plowed the land as early in spring as it would crumble nicely, finding it in much better mechanical condition than a piece of similar soil near by that had lain bare during the winter. I harrowed it fine and set the plants May 10 to 17, using my home grown plants from a field near at hand. Set them in rows three and one-half feet apart and plants about fifteen inches in the row—105 rows of twelve rods' length, nine varieties, principally Bubach, Lovett and Parker Earle—thirty Lovett, twenty-one Bubach, twenty Parker Earle, ten Greenville, eight Haverland, five Mammoth Beauty, four Timbrel, four VanDeman, three Eureka. No farm

manure was used. Set them by line, and raked in twenty-five pounds Stockbridge strawberry fruit manure on each row, previous to setting. Ninety-nine out of every 100 plants grew, scarcely a plant wilted. Second day after setting, May 22, raked entire piece with common garden rake and again ten days later. After that, cultivated with horse every ten days till September 1, narrowing cultivator each time, allowing plants to make wide matted rows. June 8, sowed 800 pounds cotton seed meal on the rows; June 26, sowed 2,000 pounds fine ground bone on the rows; November 1, 100 bushels ashes, mostly from soft wood and containing about twenty per cent of air-slaked lime mixed through them; November 30, spread six or seven tons bog hay evenly over entire surface—during winter a few loads of coarse manure on the rows to help hold the covering during our March winds; April 22, uncovered the rows, leaving hay in the paths; May 2, 100 bushels of wood ashes were sowed on the rows. Picked first crate June 19 and last quart of berries July 30. I sprayed the plants as soon as leaves began to grow, and again as the first blossoms appeared, using eight pounds sulphate copper and eight lime, one-fourth pound Paris Green to fifty gallons water, five pounds each—all I now use. No runners were cut except to prevent mixing where two varieties were likely to run together. Some will ask, Where is there anything new in this, or why not keep on in same way with same varieties? These questions, each must determine for himself. That land and those two seasons were favorable for that kind of treatment.

Virgin soil, we all know, is best for strawberries, as a rule, but we cannot always get it to use; therefore, the most important question is, how can we renew the soil so as to use it again for same fruit. Possibly Crimson Clover will do for you, but I use the large red. As soon as I can after strawberries are picked, plow in the old vines and mulching, sow one-half bushel big clover and one bushel barley or oats on each acre. This thin sowing of grain helps the clover to catch and though it does not head out in fall, usually it grows tall enough, if sown before August 15, so that when frost kills it, it stands up enough to catch

and hold the snow and partially shade the ground, acting as a mulch to prevent winter killing the clover. On one acre so treated in fall of '98 I kept two cows tied on for four months past season, and they hardly kept up with the growth, though season was rather dry. Two acres next to it I mowed June 10, and again August 16, the hay I am now feeding my cows, and without any grain, they do as well in flesh and milk as when fed on ordinary fine stock hay and a fair grain ration added. Therefore, cutting the second crop so early, a third growth came on; plenty for winter protection. I shall set strawberries on the clover sod. A friend of mine picked over 200 bushels to the acre last season, as he sold 413 bushels from less than two acres grown on clover sod. I saw the fruit grown in matted rows. It was good size, color and flavor. He used fine ground bone raked into the soil where the plants were to be set—at time of setting. No farm manure was used; therefore, less weeds to fight. I now have a nice piece of strawberries on land not harrowed at all after plowing. As it plowed up fine and loose, being soil naturally inclined to pack or bake, I tried this way and shall follow it hereafter when I meet with similar conditions at plowing time in spring, for it remained light and mealy all summer. In the rows, of course the paths got packed some; these were mellowed by horse cultivation, which was done every two weeks with fine-tooth cultivator.

*Raspberries.*—I have not been able to find a better berry for me than the Cuthbert. Loudon I have. It is more hardy and in some respects more showy. But from inquiries made in Boston and other cities last fall I could not find any in whom I had confidence that would say that he considered it as good even as Cuthbert in any respect as a market berry. I want the best I can get. I have found no new method of cultivation. Nothing better than hills five by six feet and cultivate often, and shallow both ways. If to be left standing, tie to stakes in fall; having pinched back young growth at three feet in the summer, to make branching stocky canes, leave six to eight in the hill if land is strong and right; but if to be laid down and covered for winter protection do not do any pinching back,

but allow canes to grow tall and more slender, to bend more easily, and leave eight to twelve canes in each hill; poor land, or light soil, less canes. Cultivate fine and shallow until fruit ripens. Lay them down 5th to 15 of November, or later if sure not to get caught by frost; take them up soon as frost is out in spring, and tie to stakes evenly around, not all on one side; cut back to convenient height for pickers.

*Blackberries.*—I grow the Agawam only, for market; test few new ones occasionally; but have found none better for me that are so hardy here. Set them same as Raspberries and usually in October, and spray the canes before buds start and again old and new growth, as the first blossoms open, using same mixture as for strawberries, and always make it fresh.

Fay Currant is still my favorite, if I have any, but sometimes wish I had not a bush of any kind. Price so low past few years they have scarcely paid for fertilizer and labor. The Stalk borer, now our worst enemy, is bound to ruin them, and as yet no economical way to prevent its ravages. Spraying has no effect, and with me the trouble is about as serious as the galls on Raspberry roots, no one as yet being able to prove the cause or find a sure remedy. Professor Maynard says it may be produced either by some insect or it may be a fungus growth. He thought higher fertilizing might help some, or better, a rotation of crops, which means root them out entirely and set on new soil.

With grapes I have had very little experience. Not that I do not like them, but think my soil and location not at all adapted to them. I do not think they will ever be grown extensively in New England. Our early fall and late spring frosts is much against it. They grow them so cheap along the lakes in Western New York, where the soil is suitable and have natural protection. Two years ago last fall I went through some of the vineyards along Lake Erie, and although we had been having freezing weather here, there were hundreds of tons yet to be picked. They were then delivering them aboard the cars, along the road, at $5 per ton. At one small station eight

cars were on a side track being loaded at that price. Our train stopped to take on two cars, going to New York by express. A gentleman got off the train and bought three ten-pound baskets for twenty-five cents, of a grower. I wondered then how these growers, after paying for baskets or crates and picking and packing, were ever able to buy any seal-skin sacks for their wives, or send them to Europe for a pleasure trip from the profits—unless as the man who sold shot by the pint for a pound.

There is a growing demand for Gooseberries, and they have been sold at a little better prices than currants for past three years, but four or five acres would probably supply a pretty large city or two now. The Red Jacket, I have found best of the newer varieties. Large, showy fruit and bears well here.

Make fruit to which your soil is best adapted a specialty until you have learned how to bring it to perfection. But do not put "all your eggs in one basket"; have something else to fall back on. The crop that paid me best last season, labor and expense considered, was potatoes. Some seasons strawberries pay best; another it may be raspberries, and one year it was blackberries. We may be sure of this—whatever we get out of Mother Earth we will earn every dollar by mental or physical labor, or both.

*Marketing.*—Mr. Blodget has given you excellent points in this line, as he sees them from his experience in handling in large quantities. We must use convenient, neat and attractive packages and, all things being equal, the nearer we can get to the consumer that requires our quality of goods, the better, as the less distance the fruit is shipped, the fewer times it is handled, the better it will appear. But often, or generally, the grower has little or no acquaintance with the best trade, and cannot sell direct to consumer. I have had very little experience with commission dealers, but so far as my experience goes I had rather trust them than the average farmer, and because of their large acquaintance, and being on the ground, or in the market, they can often pay the grower a higher net price for his fruit than he dare ask for it of his regular customers or consumers, provided it is received in fine con-

dition. Put up the fruit in packages that handle easily; don't use sixty-quart crates and expect them to go as well as in light crates by express. Express messengers have to handle them quickly and often pile them five or six high in the cars. I was in the car one day and heard the expressman say: "Damn those sixty-quart crates!" I then laid mine one side, and the next winter cut them down to thirty-two quarts each.

As to returning empty crates. At our Massachusetts fruit growers meeting last month a majority present decided that it did not pay to have them returned; that it was better to use new, cheaper crates and let them go with the fruit; but that is not my practice. I have now several homely heavy thirty-two-quart crates that I was foolish enought to pay Mr. Hale $1 each for, eighteen years ago. They have been in use every year, and are now to all appearances about as good as ever; probably the cheapest crates I ever bought, though I have gathered many of late years at ten cents each. One rule I will give, is this: Find a dealer or commission merchant in whom you have the utmost confidence; then work together in confidence; he needs yours as much as you do his, and no more; there should be mutual dependence. Don't try to sell to three or four dealers in same town or city. But at the same time, keep posted as to prices in various places. I shipped one morning twelve crates of raspberries to six cities and towns—two crates to each. Five of them returned me twelve cents per quart, while the sixth paid me eighteen cents per quart. The next season there was the same amount of difference in prices in strawberries, but not the same city paying the high price on the strawberries that paid the most for raspberries the previous season. We growers have a right to all we can get out of the fruit, if honestly packed from top to bottom, and remember, we must earn our money by head work as well as muscle, from start to finish.

I have given you my opinions and methods. But I have in mind an acquaintance who works on a different plan, which I will now give you in short: He thinks he has been successful, but says he has no time to cater to

VIEW OF SOUTHINGTON VALLEY AND THE PEACH AND APPLE ORCHARDS OF THE SHUTTLE MEADOW DISTRICT.

fancy trade. He seldom or never attends any of the fruit growers' conventions; buys fairly good second-hand crates, and hustles off the fruit, getting from one-half to two-thirds the price that I get net. Perhaps he does make more money in this way, but he cannot get as much pleasure out of his business, and is not as independent, or cannot be, in choosing his customers, and we want some fun out of it as well as profit.

The general subject of apple growing, which is at present uppermost in the minds of Connecticut fruit growers, was next taken up.

In opening the discussion, Mr. J. H. Merriman, Vice-President of the Society, read the following paper:

## LESSONS FROM THE APPLE CROP OF '99.

By J. H. Merriman, New Britain.

It is well for the mind at times to pause, and take a retrospective view of our business affairs, and, if possible, learn a lesson, both from our successes and our failures, that will in a measure be a guide in the future. In other words, reflection is more profitable than repentance. Foresight is better than hindsight; yet by bitter experience, perhaps the most valuable, certainly the most lasting, lessons of life are obtained. And I am sure the year 1899 has been unique in some respects, but rich in experiences, from which we may glean many object lessons. In these times, when business lines are drawn so closely, *success* means not only reflection, but it means *judgment* and *forethought*, based upon *experience* and *reflection*.

Horticulture must, if success is attained, be conducted upon business principles; as much so as the manufacturing or mercantile industries. It is of some of these underlying principles I would for a few moments call your attention to our theme.

"Lessons from the Apple Crop of 1899!" As we turn back the leaves of time a few moments we see written in bold and indelible letters upon the tablet of our memory

the one word—disappointment! Let us then enquire first the *reasons*, and then, if possible, apply the remedy.

In the first place, the demand for labor was so imperative that help could not be obtained to pick our fruit until it was over-ripe; factories absorbed every idle laborer, and nearly every one was behind their orders for goods. In the second place, there was a barrel famine. Factories had gathered them in for shipment of merchandise, and coopers could not make them fast enough to supply the demand, so apples had to be picked and put into piles to mellow and decay. Again, the temperature of the weather was so variable—from freezing cold to summer heat—as to induce unprecendented decay of the fruit. There are other causes for failure of which I will speak later, but let us first consider these three and, if possible, find a remedy.

To my mind, *foresight* is, in a great measure, the remedy. We should learn from the manufacturer that in times of great business activity help is a necessary adjunct to success. Have help and plenty of it engaged against the time of emergency, so that the apples can be picked promptly as soon as ripe. A few days, instead of a few weeks, should be our highest ambition to see the apples picked and put in proper storage. In order to do this the most expeditiously the barrels should be engaged beforehand and, if possible, gathered and put in trim for immediate use, so as to *pick*, *assort*, pack and ship to market or cold storage within forty-eight hours after picking, or put in some cool place where the temperature will be even. If help can be obtained, it costs less to handle direct from tree to market than any other way. Take time by the forelock and have your market made before picking. Be honest in the assorting and packing, so as to gain the confidence of and hold your customers. It is possible for a commercial fruit grower to build up a good reputation. Stencil your name and orchard on every barrel; it is *only business-wise*. Ask a good price and make them worth the price asked.

The great and final question I shall consider and the one that is the key to success, is, "How shall we sell our fruit?" The tendency of the times is to let the middle

man, or commission merchant, receive our consignment of fruit and sell it for us, but that is *not* a *business* principle; every fruit raiser should be his own marketman or know approximately how much he is to expect for his fruit before letting it pass out of his hands to a commission merchant's, who is often, alas, too often, inspired by selfish motives to provide well for his family wants at your expense. What manufacturer could exist to sell his goods in this manner, to be knocked down to the highest bidder at forced sale? Yet this is the way they do business for us when we place our fruit in their hands for sale. I have paid dearly for my lesson, and know whereof I speak; not that all commission men are dishonest, for there are some noble exceptions, and I consider an honest commission man the noblest work of God, and many times a real necessity—and, like the diamond, a precious treasure when found. But I think we have a *right*, in a *measure*, to *dictate* as to *price*. We are too prone to let the other fellow do it for us and, like the *lamb*, be "led *dumb* to the *slaughter*"; or, like the sheep before the shearer, prepared to be fleeced.

The time has come for those who raise fruit for market to put it up in the best possible shape for sale.

He who will not spray his trees will surely catch the early worm.

He who will not thin will reap small fruit.

He who will not properly assort will get the smaller price.

He who will cheat, cheats himself.

He who packs loosely bruises his own apples.

He who picks in bags does the same.

These rules are profitable for doctrine, for reproof, for correction, for instruction, for understanding, and will yield the peaceable fruit of good works.

A short talk was given by Mr. E. M. Ives of Meriden on pruning, thinning and spraying apples, being an account of some experiments carried out in Mr. Ives' orchard for several seasons past. By means of charts, Mr. Ives showed by actual figures the profitable results of intensive apple culture. The careful thinning of the fruit during the growing season produced wonderful results, as regards size, color and perfection of the apples harvested.

The closing address of the meeting was by Professor Britton on the important subject of

## GRAFTING OF NATIVE NUTS.

Professor W. E. Britton, Horticulturist,
Connecticut Experiment Station.

During the spring of 1896, 150 seedling hickories for grafting were set out in nursery rows on the station grounds at New Haven. These represented three different species—the Shellbark (*Hicoria laciniosa*), the Pignut (*H. glabra*) and the Swamp Bitter-nut (*H. Minima*), and were obtained from the nurseries of Thomas Meehan & Sons of Germantown, Pa. In setting out these seedlings it was impossible to dig holes deep enough to receive the long tap-roots on account of a ledge which came near the surface of the ground, so that from about one-half the number of seedlings the tap-roots were removed by cutting away the lower half of each. All but three of the 150 trees lived and grew, which goes to show that the natural tap-root is not essential to the vigor of the tree. I mention this because many believe that it is necessary, and that to destroy it is fatal to the tree.

The first season about fifty shellbark cions were set in these seedlings and in natural sprouts that were found on the Station grounds. The sprouts were mostly of the species known as Mocker-nut (*H. alba*). Several methods of grafting were employed. Cleft, tongue and bark grafting and side and flute budding, both above and below ground were practiced. Some were waxed and others covered with the moist earth. Some of the cions were dipped in water after preparing them for the stock, and others were not dipped. Two cions started and put out their

CHESTNUT CLEFT GRAFT—RIDGELY CIONS.

Set May 6th.

Made a growth of over six feet the first season.

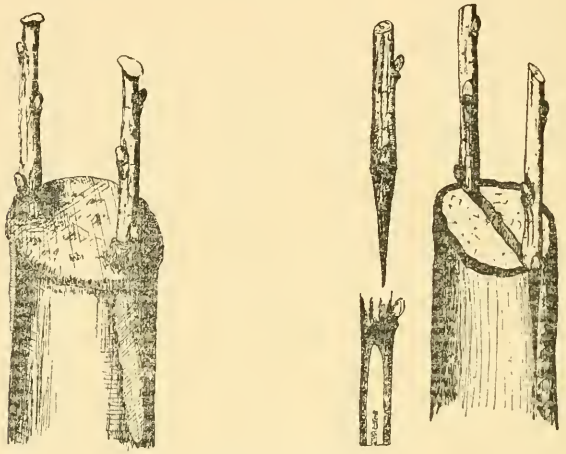
first leaves, and I was quite encouraged, but these finally withered and died. The following season, 1897, the work was repeated, and about the same number of cions set, but none of them grew. The seedlings were allowed to remain in nursery rows and during the past season about fifty cions were set in them. These also failed to grow. In making these grafts, the greatest care was exercised and the incisions and cuts were smooth and the cions made to fit the stocks. I had previously been informed that if the grafts were made below the surface of the ground there would be little trouble about making them "take," but whether above or below the surface it seemed to make little difference.

Chestnuts are much easier to graft than the hickories, and chestnut-grafting has been practiced quite extensively. During the seasons of 1895 and 1896 the late Judge A. J. Coe had considerable grafting done upon some chestnut sprout-land in Meriden. Most of the sprouts of convenient size growing on eighteen acres of land were cleft-grafted. A portion of the cions grew and many of these were afterward destroyed by fire. The writer made several visits to the orchard in 1897, and while no accurate census was taken, the proportion of grafts which lived and grew was probably not over thirty or thirty-five per cent. Messrs. Hale and Platt have grafted chestnuts in Connecticut, and in New Jersey and Pennsylvania the practice is quite an extensive one.

During the spring of 1898 over 200 cions were set in five localities in and about New Haven. The work was commenced April 20, and cions were set each week until June 20, to determine the best season for grafting the chestnut. Chestnut trees did not begin to grow until about May 15 and the early set cions made no growth for a month, and many did not grow at all. Those that did live, however, made a large growth during the season. The late set cions "took" fairly well, but some were afterward killed by drought; they grew only five or six inches each. Of the cions set between May 1 and June 15, nearly fifty per cent grew, while only ten per cent of the

cions lived where set earlier than May 1 and seventeen per cent of those set later than June 15.

The winter of 1898–1899 was a severe one, and many trees and plants that are usually considered hardy were injured. It is interesting, therefore, to note the effect upon the chestnut grafts and cions. As a rule, the early set ones which made a vigorous growth came through the winter in good condition, while of the late grafts nearly every one was dead. In some cases the stocks had been

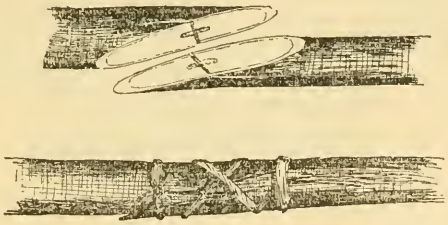


CLEFT GRAFT.

killed back to the ground. Cions were cut from the living grafts to set during the spring of 1899, the work of grafting was begun and over 100 cions set in the stocks, when it was discovered that most of the cions had been injured during the winter, the cambium in many places having turned black and begun to decay. The result of this grafting was of course unsatisfactory, the proportion which lived and grew being very small. Some of the stocks had doubtless been weakened during the winter as well as the cions. Growth started, however, in some of them, and was checked later by the serious drought which prevailed

during a greater portion of the season. In one case noted, the cions grew over a foot when killed by the drought, and the stock died to the ground.

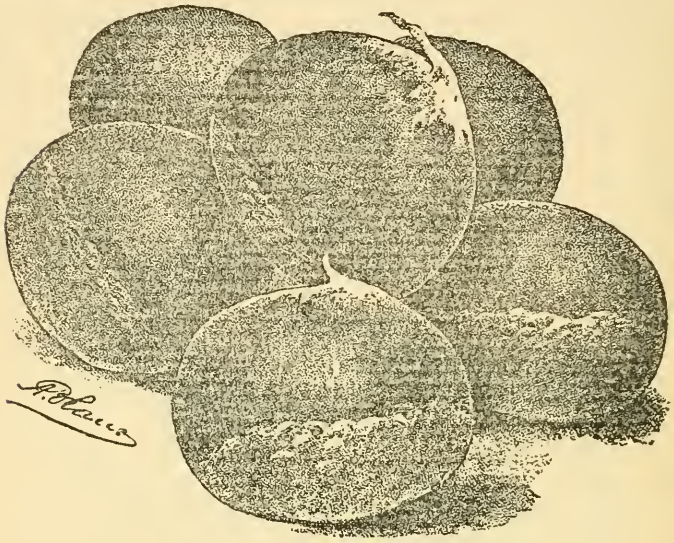
In grafting chestnuts, almost any form of graft may be used—the cleft, tongue and bark grafts being employed in the work just mentioned. Though the cions will "take" equally well with either, the tongue-graft seems to give a smoother and perhaps stronger union than either of the other forms. The bark graft is least satisfactory in this respect and is the most likely to be broken off by winds. The best results will probably be obtained by tongue-grafting the small branches from one-fourth to one-half inch in diameter. Then we must avoid cutting off large branches, where not well shaded, for these almost invariably sunburn and the stock is seriously injured or perhaps killed.



TONGUE OR WHIP GRAFT.

If a larger tree is to be top-worked, it is advisable to graft only a few of the branches each season, leaving enough foliage on the tree to shade the grafts the first season. Where the graft makes a vigorous growth it is often necessary to support it by tying to a stake to prevent it being broken off by strong winds. The tongue and bark grafts need tying to hold the cions in place. Raffia is the best tying material. This substance is obtained from a species of palm in Madagascar and retails for about twenty cents per pound. All cut surfaces of cion and stock must be covered with wax to prevent them from drying out. There are many formulas for making grafting wax, and the fol-

lowing one, which has given excellent satisfaction for many years, was used in the experiment: One pound tallow, one pound beeswax, four pounds rosin, one-half ounce gum shellac. Each substance should be melted in a kettle in the order given before the next substance is added.



The mixture should be stirred con stantly to prevent burn ing and when all is melted it can be poured into a basin of water to cool and then pulled until it is uniform in texture and color.

President Merriman announced the standing committees for the year (see page 3), and at five o' clock, after the largest and most successful meeting in its history, the Society adjourned *sine die.*

## DISCUSSION OF THE QUESTION LIST.

Question: What is Peach Leaf Curl and how can it be prevented?

Answer—Professor Britton: It is a fungus. Spraying will prevent it, only we do not seem to be successful in spraying peach trees here in Connecticut.

President Hale: In Michigan they spray their trees when in a dormant condition, either with Copper Sulphate or Bordeaux.

Mr. Merriman: Does the leaf curl amount to much here in Connecticut?

President Hale: I think not. I know of very few instances. The Elberta peach tree makes a magnificent growth of foliage in Michigan, but is so subject to the leaf curl that they will have to abandon its growth.

Q. Should fruit growers specialize or aim to produce both the orchard and small fruits?

A. Mr. Platt: I think it will be wiser for them when opportunity offers to specialize and raise larger quantity and better, but we cannot always do it, but it should be the aim of Connecticut people generally.

Q. Is the twenty-five per cent mixture of kerosene and water sufficient to kill the San Jose scale in all cases, where properly applied?

A. Professor Gulley: Not in all cases. I question whether any spray of kerosene and water, or kerosene in any form, will kill the San Jose scale so that it will not appear again. Professor Johnson had sprayed trees as thoroughly as he could with a twenty-five per cent solution, and there was not a live scale left that he could find, yet after about a month there was plenty of live scale on the plants. It cannot be relied upon to exterminate the scale. Spraying with crude petroleum is better than spraying with kerosene.

Q. Dr. Smith: Have you ever used copper solution for fungus troubles, spraying when the trees were in dormant condition?

A. Professor Gulley: Yes; and I have used the sulphate of copper alone and am satisfied that for ordinary cases of the fungus winter spraying is unnecessary; if you wait until the foliage is coming out it is ample time. I like the Bordeaux Mixture better than the copper sulphate because of its sticking qualities.

Q. Do you use crude petroleum clear for exterminating San Jose scale?

A. Professor Gulley: Yes.

A. Professor Beach: The use of crude petroleum for this scale has been tried in New Jersey with success, but the matter is still in the experimental stage and there is still a doubt as to what the effect will be on trees.

Q. Is fumigation sure to kill the scale?

A. Professor Britton: I do not believe it will wholly exterminate it, for it is like the poor—always with us. Fumigation of nursery stock, however, is a good thing; it is the most effectual of all treatments, yet live scale is found upon stock fumigated after this method.

A. Mr. Innis: Isn't it wise to try the petroleum treatment any way, as the tree will die if left to itself and if you kill it with the oil it is only a little quicker?

A. Professor Britton: It seems wise to try the experiments.

Further discussion upon the use of crude petroleum showed it to be in such an experimental stage that it seemed best to leave it to the Experiment Stations for another year.

Mr. Merriman: Last year I had San Jose scale on some Japan plums and I sprayed them with a strong solution of copper sulphate; it killed the majority of the scale, and so saved the life of the trees.

A. Professor Beach: I would like to ask Mr. Merriman if this spraying was done when the trees were in a dormant condition.

A. It was. I made three applications; all when the trees were in dormant condition.

Q. Who has fruited the Mesereau and Rathburn Blackberries?

A. Mr. Butler: We had one customer who fruited the Mesereau and was much pleased with it. It is a great big Snyder; turns red when ripe. It is a good berry.

Q. Why should the price of nursery stock be advanced this spring?

A. President Hale: So the poor nurseryman can get something for growing it and pay expenses. The last few years nurserymen have all been running behind. Most of them have been growing trees and plants at a loss. Besides this, there is a greater demand for nursery stock and a greater scarcity.

Q. Is there any remedy for the cracking of certain varieties of pears?

A. Spraying with Bordeaux Mixture will make even the Flemish Beauty fair and smooth.

Q. What is the size of the California apple box? Is it likely to take the place of the barrel in the Eastern markets?

A. Mr. Bennett: I think it will. It has been tried and liked in the New York market. The size of the box is twenty-two inches long, eleven and one-half inches wide and ten and one-fourth inches deep, outside measurement. It aims to hold fifty pounds of apples when well packed.

Mr. Hoyt: I think this will add to the consumption of apples. The barrel is too large for many families, as a good many will rot before they are eaten, but a package of this size will be about as many as an ordinary sized family will want to purchase at one time.

Q. Are we over doing peach culture in this State?

A. Mr. Butler: I have seen a number that were not over done in culture!

A. President Hale: We are producing more peaches in Connecticut to-day than ever before, and if we attempt to market them all in nearby towns we have over-produced for those markets, but if we use business sense and business methods and arrange with outside dealers, North, South, East and West, we can raise ten times as many peaches as we do now. New York never saw in any considerable

quantity the kind of peaches we grow here in Connecticut. We certainly have got to arrange the distribution in some way.

A. Mr. Bennett: There is no danger of growing too much good fruit. In New York I never saw the markets overstocked with good fruit, but have seen them too full of poor fruit that could not be gotten rid of at any price. Good fruit always pays.

Q. What are the best tools to cultivate an orchard on rocky soil?

A. President Hale: On some of my rough, hilly, stony land, I broke up the sod with heavy steel road plow and then made a lot of old-fashioned "A" harrows, with teeth one foot long made of one and one-fourth inch Bessemer steel; it takes a good stiff team to pull them, but they work the orchard in fine shape, where you would smash up a dozen factory-made harrows in a day. As the rocks are cleared away, I hope in a year or two more to be able to use the spring tooth harrow on a part of this rough land.

Q. Who in Connecticut has made a success of setting strawberries in the fall for market purposes?

A. Mr. Waller: I have had good luck with them; have had the largest strawberries from plants set at this time, but not any great quantity.

Q. Is it advisable to plant Japan and European plums in same orchard.

A. Mr. Butler: No; because it is not advisable to plant Europeans at all for profit.

Q. Is a mixture of 400 pounds Muriate of Potash and 1,600 pounds phosphate or acid rock a good fertilizer for peaches and berries? How much should be applied to five-year-old trees?

A. Mr. Hale: An excellent mixture where no nitrogen is required. Half ton per acre is fair application, probably a ton would pay better.

Q How does the San Jose scale injure the tree, and how can it be detected?

A. Professor Gulley: It sucks out the juices. It requires a high power microscope to detect it and you think you have a whole colony of little crabs.

Q. In planting pears for market what varieties will be likely to succeed best? Shall we plant standard or dwarf trees?

A. Dr. Russell: The best and safest pears for this latitude are Clapp, Bartlett, Seckel, Sheldon and Buerre Bosc, the latter is one of the choicest of pears when grown on red clay soil. Plant standards every time.

President Hale suggested that as the Bosc was a poor grower that Keiffer be planted on account of its great vigor and then top worked with Bosc by budding in August or September after the Kieffer were two or three years old. Mr. George T. Powell of New York, he said, had planted a Keiffer orchard and grafted it over to Bosc and was getting wonderful results marketing some superb fruit this present winter.

Q. Is a large number of blossom buds on an apple tree to be desired, rather than a moderate number?

A. Mr. Fenn: If you want annual crops a moderate number of buds is better, as too many buds incline to over-production one year and a failure the next.

Q. Will it pay to grow crab apples? What are the best varieties?

A. The crab being an ornamental as well as useful tree, is found in most home grounds, and as so many families have a surplus of fruit there is not enough market demand to warrant its being planted in orchard. Hyslop is one of the most showy, but the Transcendent makes a better flavored jelly.

Q. What is the best method of pruning currants.

A. Mr. Butler: I pruned mine below the ground.

A. President Hale: Low prices the last few years has discouraged currant culture, but, with many others, both in Connecticut and on the Hudson River, pruned after Mr. Butler's method, there are good chances for the future. Cut out the crowding branches, but do not shorten in those that are left. In summer when new growth begins, pinch back about the middle of June, and it will cause a heavy development of fruit buds.

Q. Will it pay to mulch small fruits during the ripening season?

A. As a general thing when the fruit is ready to gather the farmer has no time to think of mulching.

Mr. Sharpe: I mulched mine in winter last year and the mice gnawed them badly.

Mr. Callahan: I mulched mine last year with green rye and had an unusually fine crop of berries.

President Hale: Of course they can be mulched at any time, but as a general proposition the earlier it is done the better.

Q. Who uses a gang plow in their peach orchard and what size and whose make?

A. President Hale: I use three or more; my brother uses them; the Connecticut Valley Orchard Company uses them; also Mr. Butler. It is the Field Gang Plow, No. 8, made by the Syracuse Plow Company, price about $22.

A. Mr. Molumphy: We use the Vineyard Gang Plow.

Q. Is there any better way of keeping the peach borer out of the peach tree than digging him out with the jack-knife?

A. President Hale: There has been much written on this subject, but after all they all seem to come back to the fact that the only sure way of getting rid of him is to dig him out.

Q. How about the apple maggot in the apple, is there any remedy to prevent it?

A. Mr. VanAlstyne: It is a mighty hard thing to get rid of. We have not found any remedy better than to have sheep in the orchard and let them eat the dropped wormy apples. It troubled the Tallman Sweet so badly with us that I grafted them all over. You cannot spray for it and scientific men have not yet found any remedy for it.

Mr. Gold: My first knowledge of the apple maggot was some thirty or forty years ago in Rhode Island. A gentleman showed me a row of trees. He said they were not good for anything. They had gotten something, he didn't know what. They were a kind of sweet apple, of moderate quality, but they were all perforated with these railroad marks of the apple maggot. I had not seen anything of

the kind here in Connecticut at that time. There are others here who can tell what was their first knowledge of it. When we get the history of it we will be better able to turn in some remedy to prevent its further spread, if we cannot destroy it entirely.

Mr. Merriman: I think my first knowledge of it was about thirty years ago. The first apple I knew it to trouble was a local apple called the Scott apple; then it went into the Golden Sweet and Sour Bough. I think in the last year or two it has gotten into the Greening to some extent.

Mr. Moore: When I was a boy we had a sweet apple in our orchard; a very sweet apple; a small red one, and it was railroaded through and through with that apple maggot. This was the only apple I remember it being in. I think that must have been fifty years ago.

Q. What kind of baskets does Mr. Hale use for picking peaches and are they sorted from the baskets or poured upon a table to sort?

A. President Hale: We use a broad, shallow half-bushel stave basket, made very smooth on the inside by turning; it has a board bottom and drop handle. The peaches are picked into the basket. These baskets of peaches are brought from the field into the packing house and sorted from the baskets. You cannot afford to pour peaches any more than to run them through a peach sizer.

Mr. Hough: Can any one tell me about the Morgan Grape Hoe?

A. President Hale: The name "grape hoe" has been rather against its general introduction. It is really a small plow or cultivator, hung to one side so that the single horse that hauls it can be well out from under the trees, as can also the man who guides it by handles.

Mr. Barnes spoke favorably of the grape hoe and its use; said where the ground was mellow it did good work, being able to work close to the trees without injury to them, but where the ground was grassy and filled with much rubbish it did not work as well. Cost about $12.

Q. What fertilizers do our Connecticut apple and peach orchards stand in most need of?

A. President Hale: Cultivation.

Q. After all the necessary cultivation, what other fertilizer do they need?

A. President Hale: Bone and wood ashes, or bone and sulphate of potash.

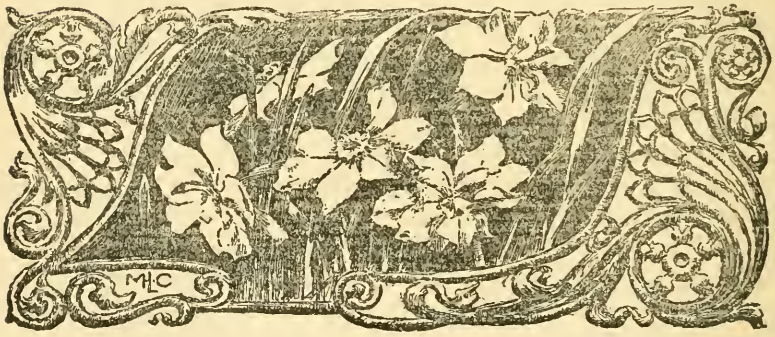
A. Mr. Barnes: Acid phosphate and muriate of potash.

Question: Can red raspberries be grown profitably on any but clay soil?

A. Mr. Sternberg: I have grown red raspberries for twenty years or more, but never on clay soil, and had good success with them. My soil is a loam and some a gravelly loam. Have had best success with the Cuthbert.

Q. When is the best time to plow under crimson or scarlet clover, rye and other green manure crops?

A. Very early in the spring in orchards, but in open fields it would depend upon what crop was to follow.



## EXHIBITS.

### REPORT OF THE SPECIAL COMMITTEE.

Your committee finds a larger showing of fruits on the exhibition tables than at any previous meeting, and the exhibits are generally in fine condition.

Of special interest is the collection of apples from the Eastern New York Society, including about twelve varieties grown by W. W. Hart of Poughkeepsie, N. Y.—Northern Spy, Babbett, Shackleford, Ben Davis, Gano and other new sorts are comprised, all splendid samples.

A plate of Red Canada apples is shown by S. A. Griswold of West Hartford, Conn.

E. C. Warner, North Haven, shows, besides the standard kinds, Vandevere, Fallawater and Fall Pippin apples.

Abner Trask, Silver Lane, Greenings and the "Case" apple, the latter not familiar to the committee.

E. M. Ives, Meriden, exhibits a long list of apples, embracing Carter, Westfield and Fallawater. Also, a plate of the Sutton Beauty apple, grown by Geo. T. Powell in New York State.

Richard Hill Farm shows eight varieties, mostly standard sorts and in good condition.

T. S. Gold, West Cornwall, has samples of Esopus, Spitzenberg, Fameuse and several other apples.

H. P. Lowery, Whigville, has Mann, Wagener, Green Sweet, Smith's Cider, and others; all fine.

Samples of canned fruits by Mrs. Harvey Jewell of Cromwell. Satsuma and Burbank plums and strawberries; all presenting a fine appearance.

Chas. Liegey of Berlin has three samples of wines, as has also Albert Bernhard, Meriden, who contributes samples of 1895 claret, made from Connecticut grown Delaware grapes, and 1897 Port, made from Green Mountain

grapes. These attract attention from the fact that they are the first Connecticut wines shown before this society.

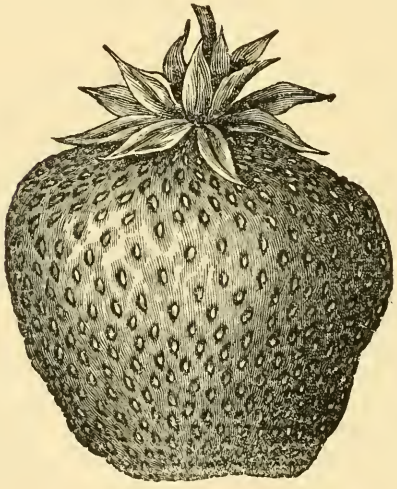
J. H. Hale shows the Coe and McFarland chestnuts, as usual of great size and showing what the best chestnut culture produces.

Hickory nuts are shown by Chas. Hall of Seymour, one particularly fine in size and quality.

Also by S. A. Smith, Clintonville, and H. S. Kirtland, the latter said to be the best nut in quality yet known.

Respectfully submitted,

A. G. Gulley,
R. A. Moore,
J. H. Merriman,
} *Committee.*



# LIST OF MEMBERS OF THE CONNECTICUT POMOLOGICAL SOCIETY.

## 1900.

Adams, Joseph, Westport.
Albison, Joseph, South Manchester.
Allen, Chas. D., Mt. Carmel Center.
Allen, Chas. I., Pequabuck.
Allen, W. F., Jr., Salisbury, Md.
Andrews, J. E., New Britain.
Ashton, Frank B., Middletown.
Atwater, Edwin B., New Haven.
Atwater, E. A., Cheshire.
Atwater, E. B., Plantsville.
Atwater, P. H., Cheshire.
Ayer, E. C., Unionville.
Babcock, G. P., Rockville.
Babcock, H. J., Rockville.
Bailey, F. B., Durham.
Baldwin, N. S., Meriden.
Baldwin, Walter H., Cheshire.
Ballou, Prof. H. A., Storrs.
Barber, C. W., New Britain.
Barker, N. C., Lebanon.
Barnes, A. G., New Milford.
Barnes, J. Norris, Yalesville.
Barnes, John R., West Cheshire.
Barnes, J. J., Southington.
Bartholomew, W. I., Putnam.
Bass, Lucien, Scotland.
Bassett, George E., Clintonville.
Batty, H. P., New Britain.
Beach, A. S., Plattsville.
Beach, Prof. S. A., Geneva, N. Y.
Beach, Z. P., Wallingford.
Beard, Wm. T., Shelton.
Beard, O. G., Shelton.
Beckwith, G. C., Nepaug.
Beers, F. H., Hawleyville.
Beers, S. Perry, Greenfield Hill.
Bernhard, Albert, Meriden.
Blakeslee, G. N., Clintonville.
Boardman, F. E., Little River.
Benedict, F. C., West Hartford.
Blakeman, J. H., Oronoque.
Bliss, Ethelbert, Wilbraham, Mass.
Bolles, C. P., Wilbraham, Mass.
Bradley, F. N., Derby.
Brainerd, A. H., Thompsonville.
Brainerd, M. N., Southington.
Brewer, C. S., Hartford.
Britton, Prof. W. E., New Haven.
Brockett, Hobart J., Montowese.
Bronson, N. S., New Haven.
Brown, J. S., Vernon.
Buckingham, C., Southport.
Buell, H. B., Eastford.
Bushnell, Huber, Berlin.
Bushnell, Mrs. Huber, Berlin.
Butler, Geo. E., Meriden.
Butler, Geo. S., Cromwell.
Cables, Cecil, Terryville.
Callahan, Thos., Newington.
Case, G. J., Canton.
Chamberlain, L. P., Storrs.
Church, F. J., Pleasant Valley.
Clarke, D. N., Westville.
Clark, Geo. M., Higganum.
Clinton, E. B., Clintonville.
Coe, Ernest F., New Haven.
Coe, W. T., Durham Center.
Coleman, M. L., Seymour.
Coleman, M. P., So. Coventry.
Collins, Daniel, So. Glastonbury.
Colton, L. F., Hartford.
Comstock, G. C., Norwalk.
Connecticut Agricultural College, Storrs.
Cook, Ruben T., Meriden.
Cook, S. G., Branford.
Craw, Alanson, Waterville.
Curtis, H. B., Cheshire.
Curtis, Mrs. H. B., Cheshire.
Curtis, Robt. W., Stratford.
Davis, Chas. T., Middletown.
Davis, E., Branford.
Davis, Richard, Middletown.
Dearden, Greenwood, Tolland.
Dimon, Wm. B., Shelton.
Doolittle, Arthur H., Westville.
Doolittle, S. B., Wallingford.
Downs, W. S., Derby.

Dunham, H. C., Middletown.
Eddy, J. C., Simsbury.
Eddy, John S., Unionville.
Elsworth, Frederick, Hartford.
Elwood, J. F., Green's Farms.
Eno, R. B., Weatogue.
Ensign, F. H., Silver Lane.
Ensign, E. R., Silver Lane.
Expansive Tree Protector Co., Rochester, N. Y.
Fairchild, H. L., Nichols.
Fanton, I. C., Westport.
Farnham, A. N., New Haven.
Fawthrop, Walter, Cromwell.
Fenn, Dennis, Milford.
Ferson, E. B., Chicago, Ill.
Flint, George W., Storrs.
Forbes, J. S., Burnside.
Francis, J. H., Meriden.
French, W. H., Wolcott.
Frisbie, John C., Southington.
Frisbie, Martin M., Southington.
Frisbie, M. W., Southington.
Gates, W. F., Willimantic.
Gaylord, E. W., Bristol.
Gilbert, Henry, Middletown.
Gilbert, Orrin, Middletown.
Gilbert, Mrs. Orrin, Middletown.
Gilbert, Thomas, Middletown.
Gold, T. S., West Cromwell.
Goldsborough, H. H., Mansfield.
Goldsmith, H. G., Branford.
Gould's Mfg. Co., Seneca Falls, N. Y.
Gridley, E. D , New Britain
Griswold, H. O., West Hartford.
Griswold, J. B., Newington.
Griswold, S. A., W. Hartford.
Griswold, W. F., Rocky Hill.
Griswold, S. P., W. Hartford.
Gulley, Prof. A. G., Storrs.
Guyer, John, Milford.
Hale, G. H., So. Glastonbury.
Hale, J. H., South Glastonbury.
Hale, Stancliff, So. Glastonbury.
Hall, G. D., Wallingford.
Hall, G. H., Manchester.
Hannah, W. L , Bristol.
Hart, Mrs. S. A., Kensington.
Hart, G. W., Unionville.
Hersey, G. M., Hartford.
Hill, S. B., Waterbury.
Hilliard, H. J., Black Hall.
Holmes, John E., Stratford.
Hopson, G. A., E. Wallingford.
Hopson, F. S., Bridgeport.
Hotchkiss, B. S., Waterbury.
Hotchkiss, D. B., Prospect.
Hotchkiss, Chas. M., Cheshire.
Hough, E. J., Yalesville.
Hough, Geo. E., Yalesville.
Hough, Joel R., Wallingford.
Hough, Eli S., Poquonock.
Hoxie, Geo. H., No. Franklin.
Hoyt, Edwin. New Canaan.
Hoyt, Jas., New Canaan.
Hubbard, Clement S., Higganum.
Hubbard, Elmer S., Higganum.
Hubbard,, J. M., Middletown.
Hubbard, Robt., Middletown.
Hunt, W. W., Hartford.
Innis, A. C., Stratford.
Ives, E. M., Meriden.
Ives, C. P., New Haven.
Ives, J. I., So. Meriden.
Jackson, Geo. O., Colchester.
Jeffrey, H. L , Woodbury.
Jenkins, Dr. E. H., New Haven.
Jennings, E. G., Plattsville.
Jennings, Geo. P., Green's Farms.
Jewell, Harvey, Cromwell.
Johnson, Dr. F. E..Mansfield Depot
Kelsey, Frederick, Higganum.
Kenney, J. P , Hockanum.
King, N. N., Thompsonville.
Kirkham, John S., Newington.
Knapp, M C., Danbury.
Koons, Prof. B. F., Storrs.
Lapsley, Arthur B., Pomfret Center
Lathrop, E. B., Vernon Center.
Latimer, F. C., New Britain.
*Lewis, Frank M., Southington.
Liegey, Charles, Beckley.
Lobdell, J. C., Greenfield Hill.
Lord, J. W., Warehouse Point.
Loring, H. P., Whigville.
Lowery, L L., Whigville.
Loverin, D. P., Huntington.
Lyman, C. E., Middlefield.
Lyman, D. A., Willimantic.
Manchester, George C., Bristol.
Manchester, E., Bristol.
Manchester, H. G., West Winsted.
Manchester, Robert, Bristol.
Manchester, E. F., Bristol.
Mansfield, Wm. H., W. Hartford.

Mansfield, Peter, West Hartford.
May, W. B., Hartford.
McCall, E. H., Lebanon.
Meachen, Geo., Stratford.
Merriman, J. H., New Britain.
Merwin, Walter L., Milford.
Mexcur, Geo., Bloomfield.
Miles, H. C. C., Milford.
Miller, F. B., Bloomfield.
Miller, W. H., Bristol.
Molumphy, J. T., Berlin.
Monson, W. B., Mt. Carmel.
Moore, Chas., Southington.
Moore, H. S., Southington.
Moore, R. A., Kensington.
Morgan, E. P., Cheshire.
Morse, C. Z., Shelton.
Morse, H. C., Wallingford.
Morton, E. G., East Windsor.
Moses, A. A., Unionville.
Moss, Julius, W. Cheshire.
Nason, Geo. K., Willimantic.
Nettleton, H. I., Durham.
Newell, E. R., Southington.
Noble, John B., E. Windsor.
Norton, John, Kensington.
Orcutt, P. B., Clintonville.
Parker, John B., Jr., Poquonock.
Patterson, B. C., Torrington.
Patterson, S. A., Stratford.
Payne, Lyman, Portland.
Pease, Simeon, Greenfield Hill.
Peck, A. C., West Cheshire.
Peck, Clifton, Yantic.
Peck, F. J., Mt. Carmel.
Peck, W. N., Mt. Carmel Center.
Pero, Louis, So. Glastonbury.
Perry, F. L., Bridgeport.
Pierpont, A. B., Waterbury.
Pierpont, A. J., Waterbury.
Plant, A. B., Branford.
Plant, Albert E., Branford.
Platt, G. F., Milford.
Platt, N. D., Milford.
Platt, N. S., New Haven.
Platt, Wm. F., Milford.
Plumb, Jas., Stratford.
Pomeroy, C. B., Willimantic.
Putnam, J. H., Litchfield.
Rand, Mrs. P. C., Meriden.
Reinhold, R. W., Mill Brook.
Rice, W. B., Meriden.
Roberts, C. S., Riverton.
Roberts, E. J., Middletown.
Roberts, S. W., Middletown.
Rogers, E., New Britain.
Russell, Dr. Gurdon W. Hartford.
Russell, S., Jr., Middletown.
Savage, H. E., E Berlin.
Schwink, J. G., Meriden.
Seeley, Edward, Plattsville.
Sharp, A. G., Richmond, Mass.
Shedd, G. V., Preston.
Shepardson, W. M., Middlebury.
Sherwood, J. H., Southport.
Sherwood, N. H., Southport.
Skinner, M. G., Higganum.
Smith, G. W., Hartford.
Smith, Mrs. G. W., Wethersfield.
Smith, J. A., Hartford.
Smith, J. B., Berlin.
Smith, Dr. L. A., Higganum.
Smith, L. P., Lebanon.
Smith, S. A., Clintonville.
Spicer, G. W., Deep River.
Staples, G. W., Hartford.
Sternberg, A. C., West Hartford.
Stevens, N. S., East Canaan.
Stevens, W. W., Clintonville.
Strumpf, Geo., Burnside.
Sturgis, Dr. W. C., New Haven.
Thomas, W. T., Groton.
Thompson, Paul, West Hartford.
Tillinghast, G. G., Vernon.
Tillotson, H. D., West Hartford.
Todd, E. A., Waterbury.
Trask, Abner, Silver Lane.
Trask, W. W., Silver Lane.
Tuttle, L. P., North Haven.
Tyler, W. M., Waterbury.
Valentine, H. E., Cheshire.
VanAlstyne, E., Kinderhook, N. Y.
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Wakeman, S. B., Saugatuck.
Waller, W. E., Trumbull.
Warner, E. C., Fair Haven.
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Watrous, J. L., Meriden.
Webster, Geo., Jr., Rockwille.
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Wells, Dudley, Wethersfield.
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Werking, Adolph, Plantsville.
Whittlesey, H. A., Newington.
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Wilcox, J. J., Meriden.

Wilcox, W. E., Meriden.
Wilcox, R. C. & Sons, Guilford.
Wiley, C. H , Hartford.
Williams, R. W., Bristol.
Wadsworth, A. R., Farmington.
Wolcott, E. R., Wethersfield.
Wood, O. S., Ellington.
Wooding, M. N., Hamden.
Woodruff, R. H., Guilford.
Woodward, R. W., Franklin.
Yale, Allan R., Meriden,
Yale, A. C., Meriden.
Yale, C. E., Yalesville.
Yale, J. H., Meriden.
Young, C. O., Yalesville.
Zorn, G. B., Mt. Carmel.

*Dead.

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